

Connecting via Winsock to STN

Welcome to STN International! Enter x:x

LOGINID:ssptakmv1751

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

\* \* \* \* \* Welcome to STN International \* \* \* \* \*

NEWS	1		Web Page for STN Seminar Schedule - N. America
NEWS	2	JUL 02	LMEDLINE coverage updated
NEWS	3	JUL 02	SCISEARCH enhanced with complete author names
NEWS	4	JUL 02	CHEMCATS accession numbers revised
NEWS	5	JUL 02	CA/CAPplus enhanced with utility model patents from China
NEWS	6	JUL 16	CAPplus enhanced with French and German abstracts
NEWS	7	JUL 18	CA/CAPplus patent coverage enhanced
NEWS	8	JUL 26	USPATFULL/USPAT2 enhanced with IPC reclassification
NEWS	9	JUL 30	USGENE now available on STN
NEWS	10	AUG 06	CAS REGISTRY enhanced with new experimental property tags
NEWS	11	AUG 06	BEILSTEIN updated with new compounds
NEWS	12	AUG 06	FSTA enhanced with new thesaurus edition
NEWS	13	AUG 13	CA/CAPplus enhanced with additional kind codes for granted patents
NEWS	14	AUG 20	CA/CAPplus enhanced with CAS indexing in pre-1907 records
NEWS	15	AUG 27	Full-text patent databases enhanced with predefined patent family display formats from INPADOCDB
NEWS	16	AUG 27	USPATOLD now available on STN
NEWS	17	AUG 28	CAS REGISTRY enhanced with additional experimental spectral property data
NEWS	18	SEP 07	STN AnaVist, Version 2.0, now available with Derwent World Patents Index
NEWS	19	SEP 13	FORIS renamed to SOFIS
NEWS	20	SEP 13	INPADOCDB enhanced with monthly SDI frequency
NEWS	21	SEP 17	CA/CAPplus enhanced with printed CA page images from 1967-1998
NEWS	22	SEP 17	CAPplus coverage extended to include traditional medicine patents
NEWS EXPRESS	19	SEPTEMBER 2007:	CURRENT WINDOWS VERSION IS V8.2, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 19 SEPTEMBER 2007.
NEWS HOURS			STN Operating Hours Plus Help Desk Availability
NEWS LOGIN			Welcome Banner and News Items
NEWS IPC8			For general information regarding STN implementation of IPC 8

Enter NEWS followed by the item number or name to see news on that specific topic.

All use of STN is subject to the provisions of the STN Customer agreement. Please note that this agreement limits use to scientific research. Use for software development or design or implementation of commercial gateways or other similar uses is prohibited and may result in loss of user privileges and other penalties.

\* \* \* \* \* STN Columbus \* \* \* \* \*

FILE 'HOME' ENTERED AT 15:11:35 ON 20 SEP 2007

=> file caplus		
COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'CAPLUS' ENTERED AT 15:12:01 ON 20 SEP 2007  
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
 COPYRIGHT (C) 2007 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 20 Sep 2007 VOL 147 ISS 13  
 FILE LAST UPDATED: 19 Sep 2007 (20070919/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

<http://www.cas.org/infopolicy.html>

```
=> s redispersible
L1      687 REDISPERSIBLE

=> s redispersion
      1070 REDISPERSION
      8 REDISPERSIONS
L2      1077 REDISPERSION
      (REDISPERSION OR REDISPERSIONS)
```

```
=> s ZnO
      103378 ZNO
      11 ZNOS
L3      103382 ZNO
      (ZNO OR ZNOS)
```

```
=> s zinc oxide
      638647 ZINC
      139 ZINCS
      638672 ZINC
      (ZINC OR ZINCS)
      1796554 OXIDE
      349434 OXIDES
      1895107 OXIDE
      (OXIDE OR OXIDES)
L4      103202 ZINC OXIDE
      (ZINC(W)OXIDE)
```

```
=> s (L1 or L2) and (L3 or L4)
L5      26 (L1 OR L2) AND (L3 OR L4)
```

=> display all L5 1-26 ibib abs

L5 ANSWER 1 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2007:970296 CAPLUS

ED Entered STN: 31 Aug 2007  
 TI Low-viscosity water-in-oil cosmetic emulsions containing water-soluble  
 UV-absorbing sulfonic acids, titania or zinc oxide,  
 and silicone oils  
 IN Yamaguchi, Kazuhiro  
 PA Shiseido Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 15pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 CC 62-4 (Essential Oils and Cosmetics)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2007217393	A	20070830	JP 2006-43159	20060220
PRAI	JP 2006-43159		20060220		

# CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2007217393	IPCI	A61K0008-891 [I,A]; A61K0008-72 [I,C*]; A61K0008-29 [I,A]; A61K0008-27 [I,A]; A61K0008-19 [I,A]; A61K0008-49 [I,A]; A61K0008-30 [I,C*]; A61K0008-20 [I,A]; A61K0008-23 [I,A]; A61K0008-06 [I,A]; A61K0008-04 [I,C*]
	FTERM	4C083/AA122; 4C083/AB051; 4C083/AB052; 4C083/AB082; 4C083/AB211; 4C083/AB212; 4C083/AB241; 4C083/AB242; 4C083/AB331; 4C083/AB332; 4C083/AB351; 4C083/AC022; 4C083/AC102; 4C083/AC122; 4C083/AC342; 4C083/AC372; 4C083/AC422; 4C083/AC542; 4C083/AC642; 4C083/AC662; 4C083/AC851; 4C083/AC852; 4C083/AD151; 4C083/AD152; 4C083/AD162; 4C083/AD172; 4C083/AD662; 4C083/BB46; 4C083/CC19; 4C083/DD32; 4C083/EE01; 4C083/EE06; 4C083/EE17

AB Title cosmetics, which show good storage stability, no stickiness, and smoothly-spreading property and are stirred with a steel ball just before the use, contain (a) water-soluble UV absorbers having sulfo group, (b) TiO2 and/or ZnO, (c) ≥10% silicone oils, (d) H2O, and optional (e) ≥1 selected from NaCl, MgCl2, Na2SO4, and MgSO4 to improve emulsification stability. Thus, a W/O sunscreen emulsion was formulated containing decamethylcyclopentasiloxane, dimethicone, dimethicone-treated ZnO, H2O, Na phenylbenzimidazole-5-sulfonate, and NaCl. The emulsion packed in a container with a stainless steel ball was shaken 10 times to show uniformly dispersed state. The emulsion was stored at 50° for 1 mo to show no changes in the appearance, the odor, and the touch in application to skin.

ST sunscreen emulsion UV absorbing sulfonic acid titania silicone oil; phenylbenzimidazolesulfonate UV absorber zinc oxide  
 silicone sunscreen emulsion

IT Cosmetic emulsions  
 Sunscreens

(easily-redispersible low-viscosity W/O cosmetic emulsions containing water-soluble UV-absorbing sulfonic acids, TiO2 or ZnO, silicone oils, and H2O)

IT Cyclosiloxanes  
 Polysiloxanes

RL: COS (Cosmetic use); BIOL (Biological study); USES (Uses)  
 (easily-redispersible low-viscosity W/O cosmetic emulsions containing water-soluble UV-absorbing sulfonic acids, TiO2 or ZnO, silicone oils, and H2O)

IT 541-02-6, Decamethylcyclopentasiloxane 1314-13-2, Zinc oxide 5997-53-5 7732-18-5, Water 9006-65-9, Dimethicone 13463-67-7, Titania 27503-81-7 170864-82-1 180898-37-7, Neo Heliopan AP

RL: COS (Cosmetic use); BIOL (Biological study); USES (Uses)  
 (easily-redispersible low-viscosity W/O cosmetic emulsions

containing water-soluble UV-absorbing sulfonic acids, TiO<sub>2</sub> or ZnO, silicone oils, and H<sub>2</sub>O)

IT 7487-88-9, Magnesium sulfate 7647-14-5, Sodium chloride 7757-82-6, Sodium sulfate 7786-30-3, Magnesium chloride

RL: COS (Cosmetic use); BIOL (Biological study); USES (Uses)  
(stabilizer; easily-redispersible low-viscosity W/O cosmetic emulsions containing water-soluble UV-absorbing sulfonic acids, TiO<sub>2</sub> or ZnO, silicone oils, and H<sub>2</sub>O)

ACCESSION NUMBER: 2007:970296 CAPLUS

TITLE: Low-viscosity water-in-oil cosmetic emulsions containing water-soluble UV-absorbing sulfonic acids, titania or zinc oxide, and silicone oils

INVENTOR(S): Yamaguchi, Kazuhiro

PATENT ASSIGNEE(S): Shiseido Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007217393	A	20070830	JP 2006-43159	20060220
PRIORITY APPLN. INFO.:			JP 2006-43159	20060220

AB Title cosmetics, which show good storage stability, no stickiness, and smoothly-spreading property and are stirred with a steel ball just before the use, contain (a) water-soluble UV absorbers having sulfo group, (b) TiO<sub>2</sub> and/or ZnO, (c) ≥10% silicone oils, (d) H<sub>2</sub>O, and optional (e) ≥1 selected from NaCl, MgCl<sub>2</sub>, Na<sub>2</sub>SO<sub>4</sub>, and MgSO<sub>4</sub> to improve emulsification stability. Thus, a W/O sunscreen emulsion was formulated containing decamethylcyclopentasiloxane, dimethicone, dimethicone-treated ZnO, H<sub>2</sub>O, Na phenylbenzimidazole-5-sulfonate, and NaCl. The emulsion packed in a container with a stainless steel ball was shaken 10 times to show uniformly dispersed state. The emulsion was stored at 50° for 1 mo to show no changes in the appearance, the odor, and the touch in application to skin.

L5 ANSWER 2 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2007:816790 CAPLUS

DN 147:199722

ED Entered STN: 27 Jul 2007

TI Process for the synthesis of nanocrystalline phosphor particles and nanocrystalline phosphor particles obtainable by this process

IN Feldmann, Claus; Buehler, Gunnar

PA Universitaet Karlsruhe, Germany

SO PCT Int. Appl., 34pp.  
CODEN: PIXXD2

DT Patent

LA German

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 9, 42, 78

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007082663	A1	20070726	WO 2007-EP175	20070110
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW			

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
 IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,  
 CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,  
 GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,  
 KG, KZ, MD, RU, TJ, TM

DE 102006001414 A1 20070816 DE 2006-102006001414 20060111

PRAI DE 2006-102006001414 A 20060111

# CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2007082663	IPCI	C09K0011-08 [I,A]; C09K0011-02 [I,A]
DE 102006001414	IPCI	C09K0011-00 [I,A]; C09K0011-08 [I,A]; C08K0003-00 [I,A]; A61K0049-00 [I,A]; D21H0021-30 [I,A]; D21H0021-14 [I,C*]; D21H0021-40 [I,A]; B05D0005-06 [I,A]; C03C0004-12 [I,A]; C03C0004-00 [I,C*]; C03C0017-22 [I,A]; C04B0035-00 [I,A]; C04B0041-85 [I,A]
	ECLA	C09K011/02; C09K011/08
AB	Methods for the targeted synthesis of inorg. phosphor particles which have a particle diameter of 1-100 nm, a virtually monodisperse size distribution in the range of $\pm 20\%$ and, depending on the class of material selected, a quantum yield of $\geq 20\%$ which entail reacting $\geq 1$ metal precursor with $\geq 1$ precipitating reagent at $-50^\circ$ to $200^\circ$ in a first solvent or solvent mixture; thermally treating the resulting mixture at $150-700^\circ$ for 5 s to 30 min in a second solvent or solvent mixture that includes $\geq 1$ ionic liquid; and isolating and/or purifying the phosphor particles are described in which the metal precursor is chosen from halides, nitrates, sulfates, hydrogen sulfates, acetates, acetylacetonates, oxalates, carbonates, hydrogen carbonates, phosphates, hydrogen phosphates, dihydrogen phosphates, hydrides, alcohols, and/or metalorg. compds., and the precipitating reagent is chosen from hydroxides, phosphates, carbonates, oxalates, sulfates, sulfides, halides, ammonia, hydroxylamines, amines, amides, imides, and/or water. Inorg. phosphor particles obtainable by this process and also their use for coating or embedding in a substrate selected from the group consisting of a paper, polymer, glass, metal or ceramic substrate, for example for diagnostics, therapy, as contrast agent, as marking, warning feature, for illumination, and for data storage and/or data reproduction A particular advantage of the phosphor particles which can be obtained according to the invention is that the particles have a surface finish which allows agglomerate-free redispersion in polar and nonpolar solvents or dispersion media. The choice of the dispersion medium allows the physicochem. properties of the phosphor particles which can be obtained according to the invention to be specifically matched to the requirements of a particular application.	
ST	nanocryst phosphor particle prepn; diagnostics nanocryst phosphor particle; therapy nanocryst phosphor particle; contrast agent nanocryst phosphor particle; marking nanocryst phosphor particle; illumination nanocryst phosphor particle; data storage nanocryst phosphor particle	
IT	Imaging agents (contrast; synthesis of nanocryst. phosphor particles and the nanocryst. phosphor particles and their uses)	
IT	Drugs Marking Nanocrystals Phosphors Recording materials (synthesis of nanocryst. phosphor particles and the nanocryst. phosphor particles and their uses)	
IT	Amides, processes Amines, processes Carbonates, processes Coordination compounds Halides Imides Metal alkoxides Nitrates, processes	

Phosphates, processes

Sulfates, processes

Sulfides, processes

RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

(synthesis of nanocryst. phosphor particles and the nanocryst. phosphor particles and their uses)

IT 7429-90-5P, Aluminum, uses 7429-91-6P, Dysprosium, uses 7439-92-1P, Lead, uses 7439-95-4P, Magnesium, uses 7439-96-5P, Manganese, uses 7440-00-8P, Neodymium, uses 7440-02-0P, Nickel, uses 7440-03-1P, Niobium, uses 7440-10-0P, Praseodymium, uses 7440-19-9P, Samarium, uses 7440-21-3P, Silicon, uses 7440-22-4P, Silver, uses 7440-23-5P, Sodium, uses 7440-27-9P, Terbium, uses 7440-30-4P, Thulium, uses 7440-31-5P, Tin, uses 7440-32-6P, Titanium, uses 7440-36-0P, Antimony, uses 7440-45-1P, Cerium, uses 7440-50-8P, Copper, uses 7440-52-0P, Erbium, uses 7440-53-1P, Europium, uses 7440-55-3P, Gallium, uses 7440-64-4P, Ytterbium, uses 7440-66-6P, Zinc, uses 7440-69-9P, Bismuth, uses 13708-63-9P, Terbium fluoride 13765-25-8P, Europium fluoride 113671-38-8P, Silicon oxide (SiO<sub>2</sub>)

RL: IMF (Industrial manufacture); MOA (Modifier or additive use); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(phosphors doped with; synthesis of nanocryst. phosphor particles and the nanocryst. phosphor particles and their uses)

IT 1305-78-8P, Calcium oxide, uses 1314-13-2P, Zinc oxide, uses 1314-36-9P, Yttria, uses 1314-96-1P, Strontium sulfide 1314-98-3P, Zinc sulfide, uses 1344-28-1P, Alumina, uses 7631-86-9P, Silica, uses 7758-87-4P, Calcium phosphate (Ca<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>) 7778-18-9P, Calcium sulfate (CaSO<sub>4</sub>) 7779-90-0P, Zinc phosphate (Zn<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>) 7783-40-6P, Magnesium difluoride 7789-17-5P, Cesium iodide 7789-24-4P, Lithium fluoride, uses 7789-75-5P, Calcium fluoride, uses 7790-75-2P, Calcium tungsten oxide (CaWO<sub>4</sub>) 10101-39-0P 10377-51-2P, Lithium iodide 12003-86-0P, Yttrium aluminate (YAlO<sub>3</sub>) 12004-04-5P, Barium aluminate (BaAl<sub>2</sub>O<sub>4</sub>) 12005-21-9P, YAG 12007-60-2P, Lithium borate (Li<sub>2</sub>B<sub>4</sub>O<sub>7</sub>) 12024-21-4P, Gallium oxide 12024-36-1P, Gadolinium gallium oxide (Gd<sub>3</sub>Ga<sub>5</sub>O<sub>12</sub>) 12027-88-2P, Yttrium silicate (Y<sub>2</sub>SiO<sub>5</sub>) 12031-43-5P, Lanthanum oxide sulfide (La<sub>2</sub>O<sub>2</sub>S) 12031-63-9P, Lithium niobate 12032-36-9P, Magnesium sulfide 12143-49-6P, Yttrium tantalate (YTaO<sub>4</sub>) 12159-91-0P, Germanium magnesium fluoride oxide (Ge<sub>2</sub>Mg<sub>8</sub>F<sub>20</sub>O<sub>11</sub>) 12233-56-6P, Bismuth germanium oxide (Bi<sub>4</sub>Ge<sub>3</sub>O<sub>12</sub>) 12254-04-5P, Aluminum barium magnesium oxide (Al<sub>10</sub>BaMgO<sub>17</sub>) 12339-07-0P, Gadolinium oxide sulfide (Gd<sub>2</sub>O<sub>2</sub>S) 12340-04-4P, Yttrium oxide sulfide (Y<sub>2</sub>O<sub>2</sub>S) 12442-27-2P, Cadmium zinc sulfide ((Cd,Zn)S) 12592-70-0P, Strontium gallium sulfide (SrGa<sub>2</sub>S<sub>4</sub>) 13466-21-2P, Barium phosphate (Ba<sub>2</sub>P<sub>2</sub>O<sub>7</sub>) 13566-12-6P, Yttrium vanadate 13568-56-4P, Lutetium vanadate (LuVO<sub>4</sub>) 13573-11-0P, Magnesium tungstate (MgWO<sub>4</sub>) 13597-55-2P, Strontium silicate (Sr<sub>2</sub>SiO<sub>4</sub>) 13597-65-4P, Zinc silicate (Zn<sub>2</sub>SiO<sub>4</sub>) 13628-52-9P, Gadolinium vanadate (GdVO<sub>4</sub>) 13709-38-1P, Lanthanum trifluoride 13709-49-4P, Yttrium trifluoride 13718-55-3P, Barium chloride fluoride (BaClF) 13759-29-0P, Yttrium chloride oxide (YClO) 13776-74-4P, Magnesium silicate (MgSiO<sub>3</sub>) 13778-49-9P, Barium silicate (Ba<sub>2</sub>SiO<sub>4</sub>) 13778-59-1P 13812-81-2P, Strontium phosphate (Sr<sub>2</sub>P<sub>2</sub>O<sub>7</sub>) 13875-40-6P, Lanthanum oxide bromide (LaOBr) 13968-67-7P, Barium silicate (BaSi<sub>2</sub>O<sub>5</sub>) 14118-26-4P, Sodium lanthanum fluoride (NaLaF<sub>4</sub>) 15640-94-5P, Sodium gadolinium fluoride (NaGdF<sub>4</sub>) 20548-54-3P, Calcium sulfide 21669-04-5P, Barium bromide fluoride (BaBrF) 23108-36-3P, Yttrium lithium fluoride (YLiF<sub>4</sub>) 25617-97-4P, Gallium nitride 26874-36-2P, Barium yttrium fluoride (BaYF<sub>5</sub>) 26916-94-9P, Lithium lutetium fluoride (LiLuF<sub>4</sub>) 28042-61-7P, Potassium magnesium fluoride (KMgF<sub>3</sub>) 33846-79-6P, Barium yttrium fluoride (BaY<sub>2</sub>F<sub>8</sub>) 35361-71-8P, Lithium strontium aluminum fluoride (LiSrAlF<sub>6</sub>) 35362-46-0P, Lithium calcium aluminum fluoride (LiCaAlF<sub>6</sub>) 37276-56-5P, Calcium strontium chloride phosphate (CaSr<sub>9</sub>Cl<sub>12</sub>(PO<sub>4</sub>)<sub>6</sub>) 55134-50-4P, Aluminum barium magnesium oxide (Al<sub>16</sub>BaMg<sub>2</sub>O<sub>27</sub>) 69142-81-0P 75529-26-9P, Gadolinium magnesium borate (GdMgB<sub>5</sub>O<sub>10</sub>) 75535-31-8P, Calcium chloride fluoride phosphate (Ca<sub>5</sub>(Cl,F)(PO<sub>4</sub>)<sub>3</sub>) 76125-60-5P, Strontium aluminate (Sr<sub>4</sub>Al<sub>14</sub>O<sub>25</sub>) 79304-71-5P, Lanthanum silicon nitride

(LaSi3N5) 82992-94-7P, Calcium strontium sulfide ((Ca,Sr)S)  
106804-21-1P, Magnesium strontium phosphate ((Mg,Sr)3(PO4)2)  
115968-61-1P, Vanadium yttrium oxide phosphate ([V,O,(PO4)]Y)  
119537-26-7P, Calcium magnesium sulfide ((Ca,Mg)S) 122656-71-7P, Barium  
bromide chloride fluoride (BaBr0.5Cl0.5F) 124676-67-1P, Gadolinium  
yttrium borate ((Gd,Y)(BO3)) 126344-47-6P, Magnesium zinc fluoride  
((Mg,Zn)F2) 127734-77-4P 144419-68-1P, Aluminum barium cerium  
magnesium oxide (Al11(Ba,Mg)CeO19) 145564-56-3P, Calcium magnesium  
silicate ((Ca,Mg)(SiO3)) 146259-99-6P, Strontium boride fluoride oxide  
(SrB2(F,O)4) 186956-28-5P, Aluminum magnesium oxide (Al11MgO19)  
200212-20-0P, Barium magnesium zinc oxide silicate  
((Ba,Mg,Zn)3O(SiO3)2) 225796-98-5P, Aluminum barium magnesium oxide  
(Al2(Ba,Mg)O4) 230313-54-9P, Gallium yttrium borate ((Ga,Y)(BO3))  
350480-93-2P, Magnesium strontium metaphosphate oxide ((Mg,Sr)2(PO3)2O)  
371759-79-4P, Aluminum calcium oxide silicate (Al2Ca2O(SiO3)2)  
371759-81-8P, Aluminum yttrium borate oxide (Al3Y(BO3)3O3) 371759-82-9P,  
Aluminum gallium yttrium oxide (Al3Ga2Y2O12) 944557-34-0P, Aluminum  
barium magnesium oxide (Al13BaMgO23) 944557-35-1P, Aluminum cerium  
magnesium terbium oxide (Al10Ce0.6MgTb0.35O19) 944557-36-2P, Beryllium  
zinc silicate ((Be,Zn)(SiO4))

RL: IMF (Industrial manufacture); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)

(synthesis of nanocryst. phosphor particles and the nanocryst. phosphor  
particles and their uses)

IT 56-81-5, Glycerin, uses 64-17-5, Ethanol, uses 67-56-1, Methanol, uses  
67-68-5, Dimethyl sulfoxide, uses 68-12-2, Dimethylformamide, uses  
75-04-7, Ethylamine, uses 78-50-2, Trioctylphosphine oxide 107-15-3,  
Ethylene diamine, uses 110-86-1, Pyridine, uses 111-46-6, Diethylene  
glycol, uses 111-86-4, Octylamine 112-40-3, Dodecane 124-07-2,  
Octanoic acid, uses 124-38-9, Carbon dioxide, uses 143-10-2,  
Decanethiol 151-41-7 4731-53-7, Trioctylphosphine 7446-09-5, Sulfur  
dioxide, uses 7664-41-7, Ammonia, uses 7732-18-5, Water, uses  
39407-03-9, Octyl phosphate 944557-37-3

RL: NUU (Other use, unclassified); USES (Uses)

(synthesis of nanocryst. phosphor particles and the nanocryst. phosphor  
particles and their uses)

IT 78-10-4, Silicon ethoxide 5588-84-1 7646-85-7, Zinc chloride,  
reactions 7773-01-5, Manganese chloride 7790-86-5, Cerium chloride  
10025-76-0, Europium chloride 10042-88-3, Terbium chloride 10099-58-8,  
Lanthanum trichloride 10361-37-2, Barium chloride, reactions  
10361-92-9, Yttrium chloride

RL: RCT (Reactant); RACT (Reactant or reagent)

(synthesis of nanocryst. phosphor particles and the nanocryst. phosphor  
particles and their uses)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Antonietti, M; ANGEWANDTE CHEMIE 2004, V116, P5096
- (2) Deng Tao; US 2005255236 A1 2005
- (3) Feldmann, C; ADVANCED FUNCTIONAL MATERIALS 2003, V13(2), P101 CAPLUS
- (4) Kompe, K; ANGEWANDTE CHEMIE 2003, V115, P5672
- (5) Riwozki, K; ANGEWANDTE CHEMIE 2001, V113(3), P574
- (6) Riwozki, K; JOURNAL OF PHYSICAL CHEMISTRY B, MATERIALS, SURFACES,  
INTERFACES AND BIOPHYSICAL, WASHINGTON, DC, US 2000, V104, P2824 CAPLUS

ACCESSION NUMBER: 2007:816790 CAPLUS

DOCUMENT NUMBER: 147:199722

TITLE: Process for the synthesis of nanocrystalline phosphor  
particles and nanocrystalline phosphor particles  
obtainable by this process

INVENTOR(S): Feldmann, Claus; Buehler, Gunnar

PATENT ASSIGNEE(S): Universitaet Karlsruhe, Germany

SOURCE: PCT Int. Appl., 34pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007082663	A1	20070726	WO 2007-EP175	20070110
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
DE 102006001414	A1	20070816	DE 2006-102006001414	20060111
PRIORITY APPLN. INFO.:			DE 2006-102006001414A	20060111
AB	<p>Methods for the targeted synthesis of inorg. phosphor particles which have a particle diameter of 1-100 nm, a virtually monodisperse size distribution in the range of <math>\pm 20\%</math> and, depending on the class of material selected, a quantum yield of <math>\geq 20\%</math> which entail reacting <math>\geq 1</math> metal precursor with <math>\geq 1</math> precipitating reagent at <math>-50^\circ</math> to <math>200^\circ</math> in a first solvent or solvent mixture; thermally treating the resulting mixture at <math>150-700^\circ</math> for 5 s to 30 min in a second solvent or solvent mixture that includes <math>\geq 1</math> ionic liquid; and isolating and/or purifying the phosphor particles are described in which the metal precursor is chosen from halides, nitrates, sulfates, hydrogen sulfates, acetates, acetylacetonates, oxalates, carbonates, hydrogen carbonates, phosphates, hydrogen phosphates, dihydrogen phosphates, hydrides, alcoholates, and/or metalorg. compds., and the precipitating reagent is chosen from hydroxides, phosphates, carbonates, oxalates, sulfates, sulfides, halides, ammonia, hydroxylamines, amines, amides, imides, and/or water. Inorg. phosphor particles obtainable by this process and also their use for coating or embedding in a substrate selected from the group consisting of a paper, polymer, glass, metal or ceramic substrate, for example for diagnostics, therapy, as contrast agent, as marking, warning feature, for illumination, and for data storage and/or data reproduction. A particular advantage of the phosphor particles which can be obtained according to the invention is that the particles have a surface finish which allows agglomerate-free redispersion in polar and nonpolar solvents or dispersion media. The choice of the dispersion medium allows the physicochem. properties of the phosphor particles which can be obtained according to the invention to be specifically matched to the requirements of a particular application.</p>			
L5	ANSWER 3 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN			
AN	2007:757081 CAPLUS			
ED	Entered STN: 12 Jul 2007			
TI	Purification and stabilization of colloidal ZnO nanoparticles in methanol			
AU	Sun, Dazhi; Wong, Minhao; Sun, Luyi; Li, Yuntao; Miyatake, Nobuo; Sue, Hung-Jue			
CS	Department of Mechanical Engineering, Polymer Technology Center, Texas A&M University, College Station, TX, 77843-3123, USA			
SO	Journal of Sol-Gel Science and Technology (2007), 43(2), 237-243 CODEN: JSGTEC; ISSN: 0928-0707			
PB	Springer			
DT	Journal			
LA	English			
CC	66 (Surface Chemistry and Colloids)			
AB	Purification and stabilization of colloidal ZnO nanoparticles synthesized from zinc acetate dihydrate and potassium hydroxide in methanol have been performed. Isopropanol and hexane were utilized to achieve the precipitation-redispersion washing procedure in methanol.			



K+ The results from atomic absorption spectroscopy show that the concentration of cation can be dramatically reduced by washing. X-ray diffraction and transmission electron microscopy results show that zinc layered double hydroxide formed in the ZnO precipitate can be effectively removed through concentrating the unpurified ZnO colloids by solvent evaporation. The purified ZnO nanoparticles can be fully redispersed in methanol, but become unstable with time due to the low concentration of acetate in the colloids. Fortunately, the unstable ZnO methanol colloids are found to become stable after addition of a small amount of hexane. The present study is of particular significance for the preparation of purified colloidal ZnO nanoparticles for device fabrication, functional ZnO coatings and polymer nanocomposite applications.

ACCESSION NUMBER: 2007:757081 CAPLUS  
TITLE: Purification and stabilization of colloidal ZnO nanoparticles in methanol  
AUTHOR(S): Sun, Dazhi; Wong, Minhao; Sun, Luyi; Li, Yuntao; Miyatake, Nobuo; Sue, Hung-Jue  
CORPORATE SOURCE: Department of Mechanical Engineering, Polymer Technology Center, Texas A&M University, College Station, TX, 77843-3123, USA  
SOURCE: Journal of Sol-Gel Science and Technology (2007), 43(2), 237-243  
CODEN: JSGTEC; ISSN: 0928-0707  
PUBLISHER: Springer  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Purification and stabilization of colloidal ZnO nanoparticles synthesized from zinc acetate dihydrate and potassium hydroxide in methanol have been performed. Isopropanol and hexane were utilized to achieve the precipitation-redispersion washing procedure in methanol. The results from atomic absorption spectroscopy show that the concentration of

K+ cation can be dramatically reduced by washing. X-ray diffraction and transmission electron microscopy results show that zinc layered double hydroxide formed in the ZnO precipitate can be effectively removed through concentrating the unpurified ZnO colloids by solvent evaporation. The purified ZnO nanoparticles can be fully redispersed in methanol, but become unstable with time due to the low concentration of acetate in the colloids. Fortunately, the unstable ZnO methanol colloids are found to become stable after addition of a small amount of hexane. The present study is of particular significance for the preparation of purified colloidal ZnO nanoparticles for device fabrication, functional ZnO coatings and polymer nanocomposite applications.

L5 ANSWER 4 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2007:675926 CAPLUS  
DN 147:33781  
ED Entered STN: 22 Jun 2007  
TI Preparation of metal oxide nanoparticles  
IN O'Brien, Stephen; Yin, Ming  
PA The Trustees of Columbia University In the City of New York, USA  
SO U.S. Pat. Appl. Publ., 72pp., Cont.-in-part of PCT/2004US/41141.  
CODEN: USXXCO

DT Patent  
LA English  
INCL 423592100; 423632000; 423605000; 423622000  
CC 49-3 (Industrial Inorganic Chemicals)  
Section cross-reference(s): 62, 63, 77

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	US 2007140951	A1	20070621	US 2006-451251	20060612
	WO 2005060610	A2	20050707	WO 2004-US41141	20041209
	WO 2005060610	A3	20050922		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2003-528667P P 20031211  
 WO 2004-US41141 A2 20041209

# CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2007140951	INCL	423592100; 423632000; 423605000; 423622000
	IPCI	C01B0013-14 [I,A]
	NCL	423/592.100; 423/632.000; 423/605.000; 423/622.000
WO 2005060610	IPCI	A61K [ICM,7]
	IPCR	C01F0017-00 [I,C*]; C01F0017-00 [I,A]; C01G0003-00 [I,C*]; C01G0003-00 [I,A]; C01G0009-00 [I,C*]; C01G0009-00 [I,A]; C01G0023-00 [I,C*]; C01G0023-00 [I,A]; C01G0025-00 [I,C*]; C01G0025-00 [I,A]; C01G0027-00 [I,C*]; C01G0027-00 [I,A]; C01G0031-00 [I,C*]; C01G0031-00 [I,A]; C01G0037-00 [I,C*]; C01G0037-00 [I,A]; C01G0039-00 [I,C*]; C01G0039-00 [I,A]; C01G0045-00 [I,C*]; C01G0045-00 [I,A]; C01G0049-00 [I,C*]; C01G0049-00 [I,A]; C01G0051-00 [I,C*]; C01G0051-00 [I,A]; C01G0055-00 [I,C*]; C01G0055-00 [I,A]

AB Metal oxide nanoparticles are prepared by (a) mixing a metal acetate precursor with a nonaq. organic solvent containing at least one organic stabilizing ligand to form a reaction mixture; (b) subjecting the mixture of step (a) to a temperature of 250-400° for a time sufficient to allow formation of metal oxide nanoparticles and decomposition of the metal acetate; and (c) extracting the metal oxide nanoparticles into a hydrocarbon solvent at a temperature lower than the temperature of step (b) by precipitation with a flocculating agent. The solvent is trioctylamine and the organic stabilizing ligand is oleic acid. Nanoparticles produced can be oxides of Zn, Fe, Mn, Co, Ru, Cu, Sc, Ti, V, Cr, Mo, Y, Zr, Hf, or Ni. The hydrocarbon solvent used in step (c) can be pentane, hexane, heptane, octane, or dodecane. The flocculating agent comprises a polar organic solvent, such as methanol, ethanol, propanol, or butanol. Preferably, the nanoparticles are extracted into hexane solvent by precipitation with ethanol, followed by centrifugation and redispersion in hydrocarbon solvent. The extracted nanoparticles are stable, monodisperse, and have uniform size. The extracted metal oxide nanoparticles may be subjected to oxidation to obtain further oxidized metal oxide nanoparticles. The resulting nanoparticles can exhibit magnetic and/or optical properties. The nanoparticles are well suited for use in a variety of industrial applications, including cosmetic and pharmaceutical formulations and compns. The cosmetic formulation can be makeups, topical skin care products, soaps, powders, lotions, creams, ointments, sunblocks, sunscreens, conditioners, shampoos, fragrances, deodorants, deodorizers, hair colors, or hair dyes.

ST metal oxide nanoparticle prepn trioctylamine oleic acid  
 IT Drug delivery systems  
 (nanoparticles; preparation of metal oxide nanoparticles)  
 IT Magnetic materials  
 Nanoparticles  
 Optical filters

Particle size

Sunscreens

(preparation of metal oxide nanoparticles)

IT Oxides (inorganic), preparation  
RL: IMF (Industrial manufacture); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); PREP (Preparation); PROC (Process); USES (Uses)  
(preparation of metal oxide nanoparticles)

IT 1344-43-0P, Manganese oxide (MnO), preparation  
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PRP (Properties); PREP (Preparation); PROC (Process)  
(nanoparticles; preparation of metal oxide nanoparticles)

IT 1184-78-7, Trimethylamine N-oxide  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(oxidant; preparation of metal oxide nanoparticles)

IT 1309-37-1P, Iron oxide (Fe2O3), preparation 1314-13-2P, Zinc oxide, preparation 1317-35-7P, Manganese oxide (Mn3O4) 1317-38-0P, Copper oxide (CuO), preparation 1317-39-1P, Copper oxide, preparation 1317-61-9P, Iron oxide (Fe3O4), preparation 1345-25-1P, Iron oxide (FeO), preparation  
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PRP (Properties); PREP (Preparation); PROC (Process)  
(preparation of metal oxide nanoparticles)

IT 112-80-1, Oleic acid, uses 1116-76-3, Trioctylamine  
RL: NUU (Other use, unclassified); USES (Uses)  
(preparation of metal oxide nanoparticles)

IT 142-71-2, Copper II acetate 638-38-0, Manganese II acetate 3094-87-9, Iron II acetate  
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(preparation of metal oxide nanoparticles)

ACCESSION NUMBER: 2007:675926 CAPLUS  
DOCUMENT NUMBER: 147:33781  
TITLE: Preparation of metal oxide nanoparticles  
INVENTOR(S): O'Brien, Stephen; Yin, Ming  
PATENT ASSIGNEE(S): The Trustees of Columbia University In the City of New York, USA  
SOURCE: U.S. Pat. Appl. Publ., 72pp., Cont.-in-part of PCT/2004US/41141.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2007140951	A1	20070621	US 2006-451251	20060612
WO 2005060610	A2	20050707	WO 2004-US41141	20041209
WO 2005060610	A3	20050922		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2003-528667P P 20031211  
WO 2004-US41141 A2 20041209

AB Metal oxide nanoparticles are prepared by (a) mixing a metal acetate precursor with a nonaq. organic solvent containing at least one organic stabilizing

ligand to form a reaction mixture; (b) subjecting the mixture of step (a) to a temperature of 250-400° for a time sufficient to allow formation of metal oxide nanoparticles and decomposition of the metal acetate; and (c) extracting the metal oxide nanoparticles into a hydrocarbon solvent at a temperature lower than the temperature of step (b) by precipitation with a flocculating agent. The solvent is trioctylamine and the organic stabilizing ligand is oleic acid. Nanoparticles produced can be oxides of Zn, Fe, Mn, Co, Ru, Cu, Sc, Ti, V, Cr, Mo, Y, Zr, Hf, or Ni. The hydrocarbon solvent used in step (c) can be pentane, hexane, heptane, octane, or dodecane. The flocculating agent comprises a polar organic solvent, such as methanol, ethanol, propanol, or butanol. Preferably, the nanoparticles are extracted into hexane solvent by precipitation with ethanol, followed by centrifugation and redispersion in hydrocarbon solvent. The extracted nanoparticles are stable, monodisperse, and have uniform size. The extracted metal oxide nanoparticles may be subjected to oxidation to obtain further oxidized metal oxide nanoparticles. The resulting nanoparticles can exhibit magnetic and/or optical properties. The nanoparticles are well suited for use in a variety of industrial applications, including cosmetic and pharmaceutical formulations and compns. The cosmetic formulation can be makeups, topical skin care products, soaps, powders, lotions, creams, ointments, sunblocks, sunscreens, conditioners, shampoos, fragrances, deodorants, deodorizers, hair colors, or hair dyes.

L5 ANSWER 5 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2006:982553 CAPLUS  
 DN 145:340496  
 ED Entered STN: 22 Sep 2006  
 TI Reactivity and concentration in size and shape control of metal oxide nanocrystals in synthesis by reaction of metal fatty acid salt, fatty acid and hydrocarbon solvent and pyrolysis of product  
 IN Peng, Xiaogang; Chen, Yonfen; Jana, Nikhil; Narayanaswamy, Arun  
 PA The Board of Trustees of the University of Arkansas, USA  
 SO PCT Int. Appl., 37pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 CC 57-2 (Ceramics)  
 Section cross-reference(s): 78

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006098756	A2	20060921	WO 2005-US29072	20050816
	WO 2006098756	A3	20070426		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA			
	US 7160525	B1	20070109	US 2004-965685	20041014
	US 2006211152	A1	20060921	US 2005-204766	20050816
PRAI	US 2004-601778P	P	20040816		
	US 2004-965685	A	20041014		
	US 2003-511183P	P	20031014		

CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

WO 2006098756	IPCI	H01L0021-00 [I,A]; C01G0009-00 [I,C]; C01G0009-02 [I,A]; B32B0005-16 [I,C]; B32B0005-16 [I,A]; C01G0037-00 [I,C]; C01G0037-02 [I,A]; C01G0049-02 [I,C]; C01G0049-02 [I,A]; C01G0053-00 [I,C]; C01G0053-04 [I,A]
US 7160525	IPCR	H01L0021-00 [I,C]; H01L0021-00 [I,A]
	IPCI	C01G0005-00 [I,A]; C01G0007-00 [I,A]; C01G0051-00 [I,A]; C01G0055-00 [I,A]
	IPCR	C01G0005-00 [I,C]; C01G0005-00 [I,A]; C01G0007-00 [I,C]; C01G0007-00 [I,A]; C01G0051-00 [I,C]; C01G0051-00 [I,A]; C01G0055-00 [I,C]; C01G0055-00 [I,A]
	NCL	423/001.000; 423/022.000; 423/023.000; 423/024.000; 423/138.000; 423/139.000
US 2006211152	ECLA	M01P; M01P; M01P; M01P; M22B; M22B; Y01N
	IPCI	H01L0021-00 [I,A]
	IPCR	H01L0021-00 [I,C]; H01L0021-00 [I,A]
	NCL	438/003.000; 977/963.000

AB A general, reproducible, and simple synthetic method that employs readily available chems. permits control of the size, shape, and size distribution of metal oxide nanocrystals. The synthesis entails reacting a metal fatty acid salt, the corresponding fatty acid, and a hydrocarbon solvent, with the reaction product being pyrolyzed to the metal oxide. Nearly monodisperse oxide nanocrystals of Fe<sub>3</sub>O<sub>4</sub>, Cr<sub>2</sub>O<sub>3</sub>, MnO, Co<sub>3</sub>O<sub>4</sub>, NiO, ZnO, SnO<sub>2</sub>, and In<sub>2</sub>O<sub>3</sub>, in a large size range (3-50 nm), are described. Size and shape control of the nanocrystals is achieved by varying the reactivity and concentration of the precursors.

ST metal oxide nanocrystal synthesis size shape control reactivity concn; fatty acid salt hydrocarbon solvent metal oxide nanocrystal synthesis

IT Powders  
(ceramic; size and shape control of metal oxide nanocrystals in synthesis by reaction of metal fatty acid salt, fatty acid and hydrocarbon solvent and pyrolysis)

IT Nanocrystals  
(oxide; size and shape control of metal oxide nanocrystals in synthesis by reaction of metal fatty acid salt, fatty acid and hydrocarbon solvent and pyrolysis)

IT Ceramics  
(powders; size and shape control of metal oxide nanocrystals in synthesis by reaction of metal fatty acid salt, fatty acid and hydrocarbon solvent and pyrolysis)

IT Fatty acids, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(salts; size and shape control of metal oxide nanocrystals in synthesis by reaction of metal fatty acid salt, fatty acid and hydrocarbon solvent and pyrolysis)

IT Concentration (condition)  
Crystal morphology  
Grain size  
Particle size  
Reactivity (chemical)  
Solvents  
Thermal decomposition  
(size and shape control of metal oxide nanocrystals in synthesis by reaction of metal fatty acid salt, fatty acid and hydrocarbon solvent and pyrolysis)

IT Fatty acids, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(size and shape control of metal oxide nanocrystals in synthesis by reaction of metal fatty acid salt, fatty acid and hydrocarbon solvent and pyrolysis)

IT Hydrocarbons, reactions  
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
(solvents; size and shape control of metal oxide nanocrystals in

synthesis by reaction of metal fatty acid salt, fatty acid and hydrocarbon solvent and pyrolysis)

IT 1308-06-1P, Cobalt oxide (Co3O4) 1308-38-9P, Chromium oxide (Cr2O3), preparation 1312-43-2P, Indium oxide (In2O3) 1313-99-1P, Nickel oxide (NiO), preparation 1314-13-2P, Zinc oxide (ZnO), preparation 1317-61-9P, Iron oxide (Fe3O4), preparation 1344-43-0P, Manganous oxide, preparation 18282-10-5P, Tin oxide (SnO2)

RL: SPN (Synthetic preparation); PREP (Preparation)  
(nanocrystals; size and shape control of metal oxide nanocrystals in synthesis by reaction of metal fatty acid salt, fatty acid and hydrocarbon solvent and pyrolysis)

IT 108-88-3, Toluene, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(redispersion in; size and shape control of metal oxide nanocrystals in synthesis by reaction of metal fatty acid salt, fatty acid and hydrocarbon solvent and pyrolysis)

IT 57-11-4, Stearic acid, reactions 112-80-1, Oleic acid, reactions 544-63-8, Myristic acid, reactions 557-05-1, Zinc stearate 2800-96-6, Tin(IV) acetate 13586-84-0, Cobalt stearate 14448-69-2, Nickel stearate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(size and shape control of metal oxide nanocrystals in synthesis by reaction of metal fatty acid salt, fatty acid and hydrocarbon solvent and pyrolysis)

IT 1120-45-2P, Ferric oleate 2980-59-8P, Iron(II) stearate 15114-27-9P, Ferrous oleate 65526-79-6P, Indium stearate  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(size and shape control of metal oxide nanocrystals in synthesis by reaction of metal fatty acid salt, fatty acid and hydrocarbon solvent and pyrolysis)

IT 112-95-8, n-Eicosane 646-31-1, Tetracosane 27070-58-2, Octadecene  
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
(solvent; size and shape control of metal oxide nanocrystals in synthesis by reaction of metal fatty acid salt, fatty acid and hydrocarbon solvent and pyrolysis)

ACCESSION NUMBER: 2006:982553 CAPLUS

DOCUMENT NUMBER: 145:340496

TITLE: Reactivity and concentration in size and shape control of metal oxide nanocrystals in synthesis by reaction of metal fatty acid salt, fatty acid and hydrocarbon solvent and pyrolysis of product

INVENTOR(S): Peng, Xiaogang; Chen, Yonfen; Jana, Nikhil; Narayanaswamy, Arun

PATENT ASSIGNEE(S): The Board of Trustees of the University of Arkansas, USA

SOURCE: PCT Int. Appl., 37pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006098756	A2	20060921	WO 2005-US29072	20050816
WO 2006098756	A3	20070426		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
 IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,  
 CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,  
 GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,  
 KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA

US 7160525 B1 20070109 US 2004-965685 20041014

US 2006211152 A1 20060921 US 2005-204766 20050816

PRIORITY APPLN. INFO.:

US 2004-601778P P 20040816

US 2004-965685 A 20041014

US 2003-511183P P 20031014

AB A general, reproducible, and simple synthetic method that employs readily available chems. permits control of the size, shape, and size distribution of metal oxide nanocrystals. The synthesis entails reacting a metal fatty acid salt, the corresponding fatty acid, and a hydrocarbon solvent, with the reaction product being pyrolyzed to the metal oxide. Nearly monodisperse oxide nanocrystals of Fe<sub>3</sub>O<sub>4</sub>, Cr<sub>2</sub>O<sub>3</sub>, MnO, Co<sub>3</sub>O<sub>4</sub>, NiO, ZnO, SnO<sub>2</sub>, and In<sub>2</sub>O<sub>3</sub>, in a large size range (3-50 nm), are described. Size and shape control of the nanocrystals is achieved by varying the reactivity and concentration of the precursors.

L5 ANSWER 6 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:68445 CAPLUS

DN 144:214450

ED Entered STN: 25 Jan 2006

TI Decorative coating with air purifying, antibacterial and humidity adjusting effects for internal wall

IN Ji, Zhijiang; Zhang, Liansong; Wang, Jing; Wang, Jimei; Wang, Xiaoyan; Lu, Rongchao

PA China Building Materials Academy, Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 11 pp.

CODEN: CNXXEV

DT Patent

LA Chinese

IC ICM C09D131-04

ICS C09D129-04; C09D005-03

CC 42-10 (Coatings, Inks, and Related Products)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI CN 1632010	A	20050629	CN 2004-10088977	20041123
PRAI CN 2004-10088977		20041123		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
CN 1632010	ICM	C09D131-04
	ICS	C09D129-04; C09D005-03
	IPCI	C09D0131-04 [ICM,7]; C09D0131-00 [ICM,7,C*]; C09D0129-04 [ICS,7]; C09D0129-00 [ICS,7,C*]; C09D0005-03 [ICS,7]
	IPCR	C09D0005-03 [I,C*]; C09D0005-03 [I,A]; C09D0129-00 [I,C*]; C09D0129-04 [I,A]; C09D0131-00 [I,C*]; C09D0131-04 [I,A]

AB The title decorative coating contains nanomaterial 2-10, moisture absorbing material 10-40, inorg. filler 50-80, and redispersible powder 2-5 wt%. With the synergetic effect of various mineral materials such as inorg. mineral material, natural microporous or layered material, nanomaterial and redispersible powder, the coating has special functions including capability of releasing neg. ions. It is also environment-friendly as it contains no VOC.

ST decorative coating nanomaterial moisture absorbing inorg filler redispersible powder

IT Absorbents

Cement

Fillers

Nanoparticles

# Powders

(coating containing; preparation of decorative coating with air purifying, antibacterial and humidity adjusting effects for internal wall)

IT Bentonite, uses

Diatomite

Kaolin, uses

Tourmaline-group minerals

Zeolites (synthetic), uses

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(coating containing; preparation of decorative coating with air purifying, antibacterial and humidity adjusting effects for internal wall)

IT Antibacterial agents

Coating materials

(preparation of decorative coating with air purifying, antibacterial and humidity adjusting effects for internal wall)

IT 87714-59-8, DM 200

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(DM 200, coating containing; preparation of decorative coating with air purifying, antibacterial and humidity adjusting effects for internal wall)

IT 108-05-4D, Vinyl acetate, polymers with vinyl versatate 1305-62-0,

Calcium hydroxide, uses 1309-37-1, Iron oxide, uses 1314-13-2,

Zinc oxide, uses 1314-35-8, Tungsten oxide, uses

1332-29-2, Tin oxide 7439-91-0D, Lanthanum, salts or oxides

7440-00-8D, Neodymium, salts or oxides 7440-45-1D, Cerium, salts or

oxides 7631-86-9, Silica, uses 9002-89-5, Polyvinyl alcohol

9004-62-0, Hydroxyethyl cellulose 9032-42-2, Hydroxyethyl methyl

cellulose 12174-11-7, Attapulgit 13397-24-5, Gypsum, uses

13463-67-7, Titania, uses 14807-96-6, Talc, uses 26221-27-2,

Ethylene-vinyl acetate-vinyl alcohol copolymer 52383-89-8, Vinnapas RI

551Z 63800-37-3, Sepiolite 408325-37-1, Tylovis SE 7 875690-83-8,

Rovace DP 87

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(coating containing; preparation of decorative coating with air purifying, antibacterial and humidity adjusting effects for internal wall)

IT 471-34-1, Calcium carbonate, uses

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(high-d., coating containing; preparation of decorative coating with air purifying, antibacterial and humidity adjusting effects for internal wall)

IT 9005-25-8D, Starch, ether derivs.

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(preparation of decorative coating with air purifying, antibacterial and humidity adjusting effects for internal wall)

ACCESSION NUMBER: 2006:68445 CAPLUS

DOCUMENT NUMBER: 144:214450

TITLE: Decorative coating with air purifying, antibacterial and humidity adjusting effects for internal wall

INVENTOR(S): Ji, Zhijiang; Zhang, Liansong; Wang, Jing; Wang, Jimei; Wang, Xiaoyan; Lu, Rongchao

PATENT ASSIGNEE(S): China Building Materials Academy, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 11 pp.

CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----



CN 1632010 A 20050629 CN 2004-10088977 20041123  
PRIORITY APPLN. INFO.: CN 2004-10088977 20041123

AB The title decorative coating contains nanomaterial 2-10, moisture absorbing material 10-40, inorg. filler 50-80, and redispersible powder 2-5 wt%. With the synergetic effect of various mineral materials such as inorg. mineral material, natural microporous or layered material, nanomaterial and redispersible powder, the coating has special functions including capability of releasing neg. ions. It is also environment-friendly as it contains no VOC.

L5 ANSWER 7 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:1127444 CAPLUS

DN 142:58371

ED Entered STN: 24 Dec 2004

TI Nanoparticulate redispersible zinc oxide powder iii

IN Kliss, Rainer; Kropf, Christian; Hahn, Horst; Bergmann, Soeren; Umbreit, Christian; Peschke, Joerg

PA Sustech GmbH & Co. Kg, Germany

SO PCT Int. Appl., 52 pp.

CODEN: PIXXD2

DT Patent

LA German

IC ICM C09C001-04

ICS C01G009-02; C08K003-22; C08K009-04; A61K007-48; A61K007-42

CC 42-10 (Coatings, Inks, and Related Products)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004111136	A1	20041223	WO 2004-EP6463	20040616
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

DE 10327728

A1 20050127

DE 2003-10327728

20030618

PRAI DE 2003-10327728

A 20030618

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2004111136	ICM	C09C001-04
	ICS	C01G009-02; C08K003-22; C08K009-04; A61K007-48; A61K007-42
	IPCI	C09C0001-04 [ICM,7]; C01G0009-02 [ICS,7]; C01G0009-00 [ICS,7,C*]; C08K0003-22 [ICS,7]; C08K0003-00 [ICS,7,C*]; C08K0009-04 [ICS,7]; C08K0009-00 [ICS,7,C*]; A61K0007-48 [ICS,7]; A61K0007-42 [ICS,7]
	IPCR	A61K0008-19 [I,C*]; A61K0008-27 [I,A]; A61Q0017-04 [I,C*]; A61Q0017-04 [I,A]; A61Q0019-00 [I,C*]; A61Q0019-00 [I,A]; C09C0001-04 [I,C*]; C09C0001-04 [I,A]
DE 10327728	ECLA	A61K008/27; A61Q017/04; A61Q019/00; C09C001/04B
	IPCI	C01G0009-02 [ICM,7]; C01G0009-00 [ICM,7,C*]; A61K0007-48 [ICS,7]
	IPCR	A61K0008-19 [I,C*]; A61K0008-27 [I,A]; A61Q0017-04 [I,C*]; A61Q0017-04 [I,A]; A61Q0019-00 [I,C*]; A61Q0019-00 [I,A]; C09C0001-04 [I,C*]; C09C0001-04 [I,A]
	ECLA	A61K008/27; A61Q017/04; A61Q019/00; C09C001/04B

AB Surface-modified redispersible zinc oxide nanoparticles [prepared by coating of ZnO with organic acids R1CH:CHR2O(CH2CH2O)nCH2COOH (R1 and R2 = H or C1-30 alkyl, n = 1 - 30)] for manufacture of long-term stable dispersions in organic solvents are useful in cosmetics, for UV-protection and as antimicrobial agents. Thus, adding a solution 6.2 g of ethercarboxylic acid in toluene to a suspension of ZnO particles having diameter 6 nm (prepared by hydrolysis of ZnCl2 in MeOH with aqueous solution of NaOH and washing in MeOH and toluene followed by centrifugation), mixing 3 h at elevated temperature, cooling to room temperature, centrifuging and drying the rest at 50° gave a powder forming a long-term stable transparent dispersion in toluene having particle size 23 nm.

ST surface modified redispersible zinc oxide nanoparticle coated org acid; surface modified redispersible zinc oxide nanoparticle cosmetic antimicrobial use

IT Coating materials  
(UV-absorbing; surface-modified redispersible zinc oxide nanoparticles prepared by coating of ZnO with unsat. organic acids for manufacture of stable dispersions useful for UV-protection)

IT Antimicrobial agents  
(surface-modified redispersible zinc oxide nanoparticles prepared by coating of ZnO with unsat. organic acids for manufacture of stable dispersions useful as antimicrobial agents)

IT Cosmetics  
(surface-modified redispersible zinc oxide nanoparticles prepared by coating of ZnO with unsat. organic acids for manufacture of stable dispersions useful in cosmetics)

IT Carboxylic acids, processes  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
(unsatd.; surface-modified redispersible zinc oxide nanoparticles prepared by coating of ZnO with unsatd. organic acids)

IT 57635-48-0  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
(organic acids; surface-modified redispersible zinc oxide nanoparticles prepared by coating of ZnO with unsat. organic acids)

IT 7646-85-7, Zinc chloride (ZnCl2), reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(surface-modified redispersible zinc oxide nanoparticles prepared by coating of ZnO with unsat. organic acids)

IT 1314-13-2, Zinc oxide (ZnO), uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(surface-modified redispersible zinc oxide nanoparticles prepared by coating of ZnO with unsat. organic acids)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

- (1) Bayer Ag; EP 1157064 A 2001 CAPLUS
- (2) Cognis Deutschland Gmbh; WO 0249559 A 2002
- (3) Hell; WO 03053398 A 2003 CAPLUS
- (4) Johnson & Johnson Consumer; EP 0433086 A 1991 CAPLUS
- (5) Pq Corp; WO 9524359 A 1995 CAPLUS

ACCESSION NUMBER: 2004:1127444 CAPLUS

DOCUMENT NUMBER: 142:58371

TITLE: Nanoparticulate redispersible zinc oxide powder iii

INVENTOR(S): Kliss, Rainer; Kropf, Christian; Hahn, Horst; Bergmann, Soeren; Umbreit, Christian; Peschke, Joerg

PATENT ASSIGNEE(S): Sustech GmbH & Co. Kg, Germany  
 SOURCE: PCT Int. Appl., 52 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004111136	A1	20041223	WO 2004-EP6463	20040616
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

DE 10327728	A1	20050127	DE 2003-10327728	20030618
PRIORITY APPLN. INFO.:			DE 2003-10327728	A 20030618

AB Surface-modified redispersible zinc oxide nanoparticles [prepared by coating of ZnO with organic acids R1CH:CHR2O(CH2CH2O)nCH2COOH (R1 and R2 = H or C1-30 alkyl, n = 1 - 30)] for manufacture of long-term stable dispersions in organic solvents are useful in cosmetics, for UV-protection and as antimicrobial agents. Thus, adding a solution 6.2 g of ethercarboxylic acid in toluene to a suspension of ZnO particles having diameter 6 nm (prepared by hydrolysis of ZnCl2 in MeOH with aqueous solution of NaOH and washing in MeOH and toluene followed by centrifugation), mixing 3 h at elevated temperature, cooling to room temperature, centrifuging and drying the rest at 50° gave a powder forming a long-term stable transparent dispersion in toluene having particle size 23 nm.

L5 ANSWER 8 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2004:509968 CAPLUS  
 DN 141:59224  
 ED Entered STN: 24 Jun 2004  
 TI Redispersible nanoparticulate zinc oxide powder with surface coating for use in cosmetics and for electrical conducting surfaces  
 IN Elsaesser, Ralf; Kliss, Rainer; Hahn, Horst; Kropf, Christian; Berber, Mete; Carulla, Victor Bulto  
 PA Sustech GmbH & Co. KG, Germany  
 SO Ger. Offen., 19 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 IC ICM C01G009-02  
 ICS A61K007-42  
 CC 62-4 (Essential Oils and Cosmetics)  
 Section cross-reference(s): 49

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10257388	A1	20040624	DE 2002-10257388	20021206
WO 2004052327	A2	20040624	WO 2003-EP13286	20031126
WO 2004052327	A3	20041014		
W: AU, BR, BY, CA, CN, DZ, ID, IL, IN, JP, KR, MX, NO, NZ, PL, RU, SG, UA, US, UZ, VN, YU, ZA				

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
 IT, LU, MC, NL, PT, RO, SE, SI, SK, TR  
 AU 2003288172 A1 20040630 AU 2003-288172 20031126  
 EP 1567121 A2 20050831 EP 2003-780059 20031126  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK  
 PRAI DE 2002-10257388 A 20021206  
 WO 2003-EP13286 W 20031126

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 10257388	ICM	C01G009-02
	ICS	A61K007-42
	IPCI	C01G0009-02 [ICM,7]; C01G0009-00 [ICM,7,C*]; A61K0007-42 [ICS,7]
	IPCR	A01N0057-00 [I,C*]; A01N0057-16 [I,A]; A61K0008-72 [I,C*]; A61K0008-91 [I,A]; A61K0033-30 [I,C*]; A61K0033-30 [I,A]; A61Q0019-00 [I,C*]; A61Q0019-00 [I,A]; A61Q0019-06 [I,C*]; A61Q0019-06 [I,A]; C01G0009-00 [I,C*]; C01G0009-02 [I,A]; C09C0001-04 [I,C*]; C09C0001-04 [I,A]
	ECLA	A01N057/16+M; A61K008/91; A61K033/30; A61Q019/00; A61Q019/06; C01G009/02; C09C001/04B
WO 2004052327	IPCI	A61K0007-42 [ICM,7]; A61K0033-30 [ICS,7]; C01G0009-02 [ICS,7]; C01G0009-00 [ICS,7,C*]; C08K0003-22 [ICS,7]; C08K0003-00 [ICS,7,C*]; C08K0009-04 [ICS,7]; C08K0009-00 [ICS,7,C*]; C09C0001-04 [ICS,7]
	IPCR	A01N0057-00 [I,C*]; A01N0057-16 [I,A]; A61K0008-72 [I,C*]; A61K0008-91 [I,A]; A61K0033-30 [I,C*]; A61K0033-30 [I,A]; A61Q0019-00 [I,C*]; A61Q0019-00 [I,A]; A61Q0019-06 [I,C*]; A61Q0019-06 [I,A]; C01G0009-00 [I,C*]; C01G0009-02 [I,A]; C09C0001-04 [I,C*]; C09C0001-04 [I,A]
	ECLA	A61K033/30; C01G009/02; C09C001/04B; A01N057/16+M; A61K008/91; A61Q019/00; A61Q019/06
AU 2003288172	IPCI	A61K0007-42 [ICM,7]; C09C0001-04 [ICS,7]; A61K0033-30 [ICS,7]; C01G0009-02 [ICS,7]; C01G0009-00 [ICS,7,C*]; C08K0003-22 [ICS,7]; C08K0003-00 [ICS,7,C*]; C08K0009-04 [ICS,7]; C08K0009-00 [ICS,7,C*]
	IPCR	A01N0057-00 [I,C*]; A01N0057-16 [I,A]; A61K0008-72 [I,C*]; A61K0008-91 [I,A]; A61K0033-30 [I,C*]; A61K0033-30 [I,A]; A61Q0019-00 [I,C*]; A61Q0019-00 [I,A]; A61Q0019-06 [I,C*]; A61Q0019-06 [I,A]; C01G0009-00 [I,C*]; C01G0009-02 [I,A]; C09C0001-04 [I,C*]; C09C0001-04 [I,A]
EP 1567121	IPCI	A61K0007-42 [ICM,7]; A61K0033-30 [ICS,7]; C01G0009-02 [ICS,7]; C01G0009-00 [ICS,7,C*]; C08K0003-22 [ICS,7]; C08K0003-00 [ICS,7,C*]; C08K0009-04 [ICS,7]; C08K0009-00 [ICS,7,C*]; C09C0001-04 [ICS,7]
	IPCR	A01N0057-00 [I,C*]; A01N0057-16 [I,A]; A61K0008-72 [I,C*]; A61K0008-91 [I,A]; A61K0033-30 [I,C*]; A61K0033-30 [I,A]; A61Q0019-00 [I,C*]; A61Q0019-00 [I,A]; A61Q0019-06 [I,C*]; A61Q0019-06 [I,A]; C01G0009-00 [I,C*]; C01G0009-02 [I,A]; C09C0001-04 [I,C*]; C09C0001-04 [I,A]
	ECLA	A01N057/16+M; A61K008/91; A61K033/30; A61Q019/00; A61Q019/06; C01G009/02; C09C001/04B; M01P; M01P; M01P; M01P; Y01N

OS MARPAT 141:59224

AB The invention concerns nanoparticulate zinc oxide that  
 is surface-modified with an organic acid, e.g. isostearic acid or  
 polyglycolic acid derivs. The surface-treated zinc  
 oxide can be redispersed in polar and apolar organic solvents.  
 Particles for elec. conducting surfaces and cosmetics are prepared Thus  
 zinc oxide was precipitated by dissolving 1110 g zinc chloride

in 11.1 L methanol and adding 651 g sodium hydroxide pellets under stirring and maintaining room temperature. The NaCl/ZnO mixture was separated, followed by washing and resuspension in 11 L THF. 385 G isostearic acid were added; after 3 h stirring was stopped; sodium chloride settled and coated zinc oxide was contained in the clear supernatant. The clear supernatant was separated, the solvent evaporated and the raw product reconstructed in toluene; the residual sodium chloride was removed by centrifugation. 4L ethanol (96%) were added to the centrifuged solution; the precipitated surface-modified zinc oxide was separated, dried and disintegrated; 784 g product was obtained. A sunscreen contained (weight/weight%): Cetiol OE 10; Cetiol S 10; Lanette O 4.5; Eumulgin B2 2; Monomuls 60-35C 2; Basysilon M 350 0.5; Phenonip 1; zinc oxide (surface modified with isostearic acid) 8; zinc oxide (surface modified with polyglycol diacid) 8; water to 100.

ST zinc oxide nanoparticle surface modification  
isostearate redispersion cosmetics conductor.

IT Cosmetics  
(foams; redispersible nanoparticulate zinc oxide powder with surface coating for use in cosmetics and for elec. conducting surfaces)

IT Cosmetics  
(gels; redispersible nanoparticulate zinc oxide powder with surface coating for use in cosmetics and for elec. conducting surfaces)

IT Cosmetics  
(lotions; redispersible nanoparticulate zinc oxide powder with surface coating for use in cosmetics and for elec. conducting surfaces)

IT Cosmetics  
(moisturizers; redispersible nanoparticulate zinc oxide powder with surface coating for use in cosmetics and for elec. conducting surfaces)

IT Solvents  
(organic; redispersible nanoparticulate zinc oxide powder with surface coating for use in cosmetics and for elec. conducting surfaces)

IT Cosmetics  
(powders; redispersible nanoparticulate zinc oxide powder with surface coating for use in cosmetics and for elec. conducting surfaces)

IT Antimicrobial agents  
Antioxidants  
Deodorants  
Dispersion (of materials)  
Electric conductors  
Milling (size reduction)  
Nanoparticles  
Pigments, nonbiological  
Polarity  
Precipitation (chemical)  
Stability  
Sunscreens  
Surface treatment  
Temperature  
(redispersible nanoparticulate zinc oxide powder with surface coating for use in cosmetics and for elec. conducting surfaces)

IT Cosmetics  
(sticks; redispersible nanoparticulate zinc oxide powder with surface coating for use in cosmetics and for elec. conducting surfaces)

IT 1406-18-4, Vitamine  
RL: COS (Cosmetic use); BIOL (Biological study); USES (Uses)  
(redispersible nanoparticulate zinc oxide

powder with surface coating for use in cosmetics and for elec. conducting surfaces)

IT 1314-13-2, Zinc oxide, biological studies  
 26009-03-0D, Polyglycolic acid, derivs. 26124-68-5D, Polyglycolic acid, derivs. 27306-90-7 30399-84-9, Isostearic acid 53563-70-5  
 RL: COS (Cosmetic use); TEM (Technical or engineered material use); BIOL (Biological study); USES (Uses)  
 (redispersible nanoparticulate zinc oxide  
 powder with surface coating for use in cosmetics and for elec. conducting surfaces)

IT 56-23-5, Tetrachloromethane, uses 60-29-7, Diethylether, uses 67-66-3, Trichloromethane, uses 71-43-2, Benzene, uses 75-09-2, Dichloromethane, uses 76-14-2, 1,2-Dichlorotetrafluoroethane 76-15-3 76-16-4, Hexafluoroethane 78-87-5, 1,2-Dichloropropane 79-34-5, 1,1,2,2-Tetrachloroethane 95-47-6, o-Xylene, uses 98-06-6, tert-Butyl benzene 98-82-8, Isopropylbenzene 100-41-4, Ethylbenzene, uses 101-84-8, Diphenylether 105-58-8, Diethyl carbonate 106-42-3, p-Xylene, uses 107-04-0, 1-Bromo-2-chloroethane 107-06-2, 1,2-Dichloroethane, uses 108-20-3, Diisopropylether 108-38-3, m-Xylene, uses 108-88-3, Toluene, uses 109-66-0, Pentane, uses 109-99-9, Tetrahydrofuran, uses 110-54-3, Hexane, uses 111-65-9, Octane, uses 112-58-3, Di-n-hexylether 123-91-1, 1,4-Dioxane, uses 142-82-5, Heptane, uses 142-96-1, Di-n-butylether 354-33-6, Pentafluoroethane 540-67-0, Methyl ethylether 616-38-6, Dimethyl carbonate 629-64-1, Di-n-heptylether 629-82-3, Di-n-octylether 693-65-2, Di-n-pentylether 931-56-6, Cyclohexylmethyl ether 1634-04-4, Methyl-tert-butyl ether 31807-55-3, Isododecane 60908-77-2, Isohexadecane  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (redispersible nanoparticulate zinc oxide  
 powder with surface coating for use in cosmetics and for elec. conducting surfaces)

ACCESSION NUMBER: 2004:509968 CAPLUS

DOCUMENT NUMBER: 141:59224

TITLE: Redispersible nanoparticulate zinc oxide powder with surface coating for use in cosmetics and for electrical conducting surfaces

INVENTOR(S): Elsaesser, Ralf; Kliss, Rainer; Hahn, Horst; Kropf, Christian; Berber, Mete; Carulla, Victor Bulto

PATENT ASSIGNEE(S): Sustech GmbH & Co. KG, Germany

SOURCE: Ger. Offen., 19 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10257388	A1	20040624	DE 2002-10257388	20021206
WO 2004052327	A2	20040624	WO 2003-EP13286	20031126
WO 2004052327	A3	20041014		
W: AU, BR, BY, CA, CN, DZ, ID, IL, IN, JP, KR, MX, NO, NZ, PL, RU, SG, UA, US, UZ, VN, YU, ZA				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
AU 2003288172	A1	20040630	AU 2003-288172	20031126
EP 1567121	A2	20050831	EP 2003-780059	20031126
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.:			DE 2002-10257388	A 20021206
			WO 2003-EP13286	W 20031126

OTHER SOURCE(S): MARPAT 141:59224

AB The invention concerns nanoparticulate zinc oxide that is surface-modified with an organic acid, e.g. isostearic acid or

polyglycolic acid derivs. The surface-treated zinc oxide can be redispersed in polar and apolar organic solvents. Particles for elec. conducting surfaces and cosmetics are prepared Thus zinc oxide was precipitated by dissolving 1110 g zinc chloride in 11.1 L methanol and adding 651 g sodium hydroxide pellets under stirring and maintaining room temperature The NaCl/ZnO mixture was separated, followed by washing and resuspension in 11 L THF. 385 G isostearic acid were added; after 3 h stirring was stopped; sodium chloride settled and coated zinc oxide was contained in the clear supernatant. The clear supernatant was separated, the solvent evaporated and

the

raw product reconstructed in toluene; the residual sodium chloride was removed by centrifugation. 4L ethanol (96%) were added to the centrifuged solution; the precipitated surface-modified zinc oxide was separated, dried and disintegrated; 784 g product was obtained. A sunscreen contained (weight/weight%): Cetiol OE 10; Cetiol S 10; Lanette O 4.5; Eumulgin B2 2; Monomuls 60-35C 2; Basysilon M 350 0.5; Phenonip 1; zinc oxide (surface modified with isostearic acid) 8; zinc oxide (surface modified with polyglycol diacid) 8; water to 100.

L5 ANSWER 9 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:765357 CAPLUS

DN 139:389898

ED Entered STN: 01 Oct 2003

TI Magnetic Quantum Dots: Synthesis, Spectroscopy, and Magnetism of Co<sup>2+</sup>- and Ni<sup>2+</sup>-Doped ZnO Nanocrystals

AU Schwartz, Dana A.; Norberg, Nick S.; Nguyen, Quyen P.; Parker, Jason M.; Gamelin, Daniel R.

CS Department of Chemistry, University of Washington, Seattle, WA, 98195-1700, USA

SO Journal of the American Chemical Society (2003), 125(43), 13205-13218  
CODEN: JACSAT; ISSN: 0002-7863

PB American Chemical Society

DT Journal

LA English

CC 77-1 (Magnetic Phenomena)

Section cross-reference(s): 66

AB The authors report a method for the preparation of colloidal ZnO -diluted magnetic semiconductor quantum dots (DMS-QDs) by alkaline-activated hydrolysis and condensation of Zn acetate solns. in DMSO. Mechanistic studies reveal that Co<sup>2+</sup> and Ni<sup>2+</sup> dopants inhibit nucleation and growth of ZnO nanocrystals. In particular, dopants are quant. excluded from the critical nuclei but are incorporated nearly isotropically during subsequent growth of the nanocrystals. The smaller nanocrystal diams. that result upon doping are explained by the Gibbs-Thompson relation between lattice strain and crystal solubility The authors describe methods for cleaning the nanocrystal surfaces of exposed dopants and for redispersion of the final DMS-QDs. Homogeneous substitutional doping is verified by high-resolution low-temperature electronic absorption

and MCD

spectroscopies. A giant Zeeman effect is observed in the band gap transition of Co<sup>2+</sup>:ZnO DMS-QDs. MCD and Zeeman spectroscopies were used to quantify the magnitude of the p-d exchange interaction (N0 $\beta$ ) that gives rise to this effect. N0 $\beta$  values of  $-2.3 \pm 0.3$  eV ( $-18,500$  cm<sup>-1</sup>) for Co<sup>2+</sup>:ZnO and  $-4.5 \pm 0.6$  eV ( $-36,300$  cm<sup>-1</sup>) for Ni<sup>2+</sup>:ZnO were determined Ligand-to-metal charge-transfer transitions are observed in the MCD spectra of both Co<sup>2+</sup>:ZnO and Ni<sup>2+</sup>:ZnO DMS-QDs and are analyzed in the context of an optical electronegativity model. The importance of these charge-transfer states in determining N0 $\beta$  is discussed. Ferromagnetism with TC > 350 K is observed in aggregated nanocrystals of Co<sup>2+</sup>:ZnO that unambiguously demonstrates the existence of intrinsic high-TC ferromagnetism in this class of DMSs.

ST quantum dot spectroscopy magnetism cobalt nickel zinc oxide nanocrystal

IT Zeeman effect

(giant Zeeman effect observed in band gap transition of Co<sup>2+</sup>:ZnO nanocryst. magnetic semiconductor quantum dots)

IT Exchange interaction  
Magnetooptical effect  
(in Co<sup>2+</sup>- and Ni<sup>2+</sup>-doped ZnO nanocryst. magnetic quantum dots in DMSO)

IT Ferromagnetism  
(in Co<sup>2+</sup>:ZnO aggregated nanocryst. magnetic semiconductor quantum dots)

IT Electron transfer  
(ligand-to-metal charge-transfer transitions observed in the MCD spectra of both Co<sup>2+</sup>:ZnO and Ni<sup>2+</sup>:ZnO magnetic semiconductor quantum dots)

IT Colloids  
Doping  
Magnetic semiconductor materials  
Nanocrystals  
(magnetic quantum dots: synthesis, spectroscopy, and magnetism of Co<sup>2+</sup>- and Ni<sup>2+</sup>-doped ZnO nanocryst. magnetic quantum dots in DMSO)

IT Magnetic circular dichroism  
(of ZnO nanocryst. magnetic semiconductor quantum dots in conformation of cobalt and nickel doping)

IT Band gap  
(transition; giant Zeeman effect observed in band gap transition of Co<sup>2+</sup>:ZnO nanocryst. magnetic semiconductor quantum dots)

IT 14701-22-5, Nickel(2+), properties 22541-53-3, Cobalt(2+), properties  
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)  
(magnetic quantum dots: synthesis, spectroscopy, and magnetism of Co<sup>2+</sup>- and Ni<sup>2+</sup>-doped ZnO nanocryst. magnetic quantum dots in DMSO)

IT 1314-13-2, Zinc oxide (ZnO), properties  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)  
(magnetic quantum dots: synthesis, spectroscopy, and magnetism of Co<sup>2+</sup>- and Ni<sup>2+</sup>-doped ZnO nanocryst. magnetic quantum dots in DMSO)

RE.CNT 60 THERE ARE 60 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

- (1) Alawadhi, H; Phys Rev B: Condens Matter 2001, V63, P155201/1 CAPLUS
- (2) Anderson, R; Phys Rev 1967, V164, P398 CAPLUS
- (3) Ando, K; Appl Phys Lett 2001, V78, P2700 CAPLUS
- (4) Ando, K; cond-mat/0208010 CAPLUS
- (5) Arciszewska, M; J Phys Chem Solids 1986, V47, P309 CAPLUS
- (6) Awschalom, D; Sci Am 2002, V286, P66
- (7) Bhattacharjee, A; Phys Rev B 1992, V46, P5266 CAPLUS
- (8) Blinowski, J; cond-mat/0201012 CAPLUS
- (9) Brumage, W; Phys Rev 1964, V134, P950 CAPLUS
- (10) Brumage, W; Phys Rev B: Condens Matter 2001, V63, P104411/1 CAPLUS
- (11) Cho, Y; Appl Phys Lett 2002, V80, P3358 CAPLUS
- (12) Davis, K; Science 2000, V290, P1134 CAPLUS
- (13) Denning, R; Symp Faraday Soc 1970, P84
- (14) Dietl, T; Phys Rev B: Condens Matter 2001, V63, P195205/1 CAPLUS
- (15) Dietl, T; Science 2000, V287, P1019 CAPLUS
- (16) Dietl, T; Semicond Sci Technol 2002, V17, P377 CAPLUS
- (17) Duffy, J; J Chem Phys 1977, V67, P2930 CAPLUS
- (18) Duffy, J; J Phys C: Solid State Phys 1980, V13, P2979 CAPLUS
- (19) Flederling, R; Nature 1999, V402, P787 CAPLUS
- (20) Furdyna, J; J Appl Phys 1988, V64, PR29 CAPLUS
- (21) Furdyna, J; Semiconductors and Semimetals 1988, V25
- (22) Gubarev, S; Phys Status Solidi B 1986, V134, P211 CAPLUS
- (23) Heitz, R; Phys Rev B 1993, V48, P8672 CAPLUS
- (24) Jin, Z; J Cryst Growth 2002, V237-239, P548 CAPLUS
- (25) Jonker, B; Phys Rev B: Condens Matter 2000, V62, P8180 CAPLUS
- (26) Jorgensen, C; Prog Inorg Chem 1970, V12, P101
- (27) Kacman, P; Semicond Sci Technol 2001, V16, PR25 CAPLUS
- (28) Koidl, P; Phys Rev B 1977, V15, P2493 CAPLUS
- (29) Kyrychenko, F; cond-mat/0112220 CAPLUS



- (30) Lever, A; Inorganic Electronic Spectroscopy, 2nd ed 1984
- (31) Majetich, S; Nanostruct Mater 1997, V9, P291 CAPLUS
- (32) Mao-Lu, D; J Phys C: Solid State Phys 1988, V21, P1561
- (33) Meulenkamp, E; J Phys Chem B 1998, V102, P5566 CAPLUS
- (34) Mikulec, F; J Am Chem Soc 2000, V122, P2532 CAPLUS
- (35) Noras, J; J Phys C: Solid State Phys 1980, V13, P3511 CAPLUS
- (36) Norton, D; Appl Phys Lett 2003, V82, P239 CAPLUS
- (37) Ohno, H; Nature 2000, V408, P944 CAPLUS
- (38) Ohno, Y; Nature 1999, V402, P790 CAPLUS
- (39) Oxtoby, D; Acc Chem Res 1998, V31, P91 CAPLUS
- (40) Peng, Z; J Am Chem Soc 2002, V124, P3343 CAPLUS
- (41) Piepho, S; Group Theory in Spectroscopy with Applications to Magnetic Circular Dichroism 1983
- (42) Radovanovic, P; J Am Chem Soc 2001, V123, P12207 CAPLUS
- (43) Radovanovic, P; J Am Chem Soc 2002, V124, P15192 CAPLUS
- (44) Radovanovic, P; Phys Rev Lett, in press
- (45) Saeki, H; Solid State Commun 2001, V120, P439 CAPLUS
- (46) Sato, K; Physica B 2001, V308-310, P904 CAPLUS
- (47) Sato, K; Physica E 2001, V10, P251 CAPLUS
- (48) Sawicki, M; J Supercond 2003, V16, P147 CAPLUS
- (49) Schmidt, T; Chem Mater 1998, V10, P65 CAPLUS
- (50) Schulz, H; Phys Rev B 1987, V35, P18 CAPLUS
- (51) Smith, G; J Am Chem Soc 1964, V86, P4796 CAPLUS
- (52) Solomon, E; Inorganic Electronic Structure and Spectroscopy 1999, VII, P1
- (53) Spanhel, L; J Am Chem Soc 1991, V113, P2826 CAPLUS
- (54) Thomas, D; Phys Chem Solids 1960, V15, P86 CAPLUS
- (55) Tokumoto, M; J Sol-Gel Sci Technol 2003, V26, P547 CAPLUS
- (56) Ueda, K; Appl Phys Lett 2001, V79, P988 CAPLUS
- (57) van Dijken, A; J Lumin 2000, V90, P123 CAPLUS
- (58) van Enckevort, W; J Cryst Growth 1996, V166, P156 CAPLUS
- (59) Weakliem, H; J Chem Phys 1962, V36, P2117 CAPLUS
- (60) Wolf, S; Science 2001, V294, P1488 CAPLUS

ACCESSION NUMBER: 2003:765357 CAPLUS

DOCUMENT NUMBER: 139:389898

TITLE: Magnetic Quantum Dots: Synthesis, Spectroscopy, and Magnetism of Co<sup>2+</sup>- and Ni<sup>2+</sup>-Doped ZnO Nanocrystals

AUTHOR(S): Schwartz, Dana A.; Norberg, Nick S.; Nguyen, Quyen P.; Parker, Jason M.; Gamelin, Daniel R.

CORPORATE SOURCE: Department of Chemistry, University of Washington, Seattle, WA, 98195-1700, USA

SOURCE: Journal of the American Chemical Society (2003), 125(43), 13205-13218  
CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The authors report a method for the preparation of colloidal ZnO -diluted magnetic semiconductor quantum dots (DMS-QDs) by alkaline-activated hydrolysis and condensation of Zn acetate solns. in DMSO. Mechanistic studies reveal that Co<sup>2+</sup> and Ni<sup>2+</sup> dopants inhibit nucleation and growth of ZnO nanocrystals. In particular, dopants are quant. excluded from the critical nuclei but are incorporated nearly isotropically during subsequent growth of the nanocrystals. The smaller nanocrystal diams. that result upon doping are explained by the Gibbs-Thompson relation between lattice strain and crystal solubility. The authors describe methods for cleaning the nanocrystal surfaces of exposed dopants and for redispersion of the final DMS-QDs. Homogeneous substitutional doping is verified by high-resolution low-temperature electronic absorption and MCD spectroscopies. A giant Zeeman effect is observed in the band gap transition of Co<sup>2+</sup>:ZnO DMS-QDs. MCD and Zeeman spectroscopies were used to quantify the magnitude of the p-d exchange interaction ( $N0\beta$ ) that gives rise to this effect.  $N0\beta$  values of  $-2.3 \pm 0.3$  eV ( $-18,500$  cm<sup>-1</sup>) for Co<sup>2+</sup>:ZnO and  $-4.5 \pm 0.6$  eV ( $-36,300$  cm<sup>-1</sup>) for Ni<sup>2+</sup>:

ZnO were determined Ligand-to-metal charge-transfer transitions are observed in the MCD spectra of both Co<sup>2+</sup>:ZnO and Ni<sup>2+</sup>:ZnO DMS-QDs and are analyzed in the context of an optical electronegativity model. The importance of these charge-transfer states in determining N0 $\beta$  is discussed. Ferromagnetism with TC > 350 K is observed in aggregated nanocrystals of Co<sup>2+</sup>:ZnO that unambiguously demonstrates the existence of intrinsic high-TC ferromagnetism in this class of DMSs.

L5 ANSWER 10 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2003:656693 CAPLUS  
 DN 139:182379  
 ED Entered STN: 22 Aug 2003  
 TI Synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers  
 IN Nonninger, Ralph  
 PA ITN-Nanovation G.m.b.H., Germany  
 SO PCT Int. Appl., 26 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA German  
 IC ICM C01G023-053  
 ICS C01G025-02; C01G023-00; C01G001-02  
 CC 49-3 (Industrial Inorganic Chemicals)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003068682	A1	20030821	WO 2002-DE3188	20020830
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	DE 10205920	A1	20030821	DE 2002-10205920	20020212
	AU 2002333172	A1	20030904	AU 2002-333172	20020830
	EP 1476398	A1	20041117	EP 2002-806790	20020830
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
	JP 2005528309	T	20050922	JP 2003-567825	20020830
	US 2005233146	A1	20051020	US 2005-503627	20050606
PRAI	DE 2002-10205920	A	20020212		
	WO 2002-DE3188	W	20020830		

# CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2003068682	ICM	C01G023-053
	ICS	C01G025-02; C01G023-00; C01G001-02
	IPCI	C01G0023-053 [ICM,7]; C01G0025-02 [ICS,7]; C01G0025-00 [ICS,7,C*]; C01G0023-00 [ICS,7]; C01G0001-02 [ICS,7]
	IPCR	B82B0003-00 [I,C*]; B82B0003-00 [I,A]; C01B0013-36 [I,C*]; C01B0013-36 [I,A]; C01G0001-02 [I,C*]; C01G0001-02 [I,A]; C01G0023-00 [I,C*]; C01G0023-00 [I,A]; C01G0023-053 [I,A]; C01G0025-00 [I,C*]; C01G0025-02 [I,A]
DE 10205920	ECLA	C01G001/02; C01G023/00F4; C01G023/053; C01G025/02
	IPCI	C01G0023-047 [ICM,7]; C01G0023-00 [ICM,7,C*]; C09C0001-36 [ICS,7]
	IPCR	B82B0003-00 [I,C*]; B82B0003-00 [I,A]; C01B0013-36 [I,C*]; C01B0013-36 [I,A]; C01G0001-02 [I,C*]; C01G0001-02 [I,A]; C01G0023-00 [I,C*]; C01G0023-00 [I,A]; C01G0023-053 [I,A]; C01G0025-00 [I,C*];

		C01G0025-02 [I,A]
AU 2002333172	ECLA	C01G001/02; C01G023/00F4; C01G023/053; C01G025/02
	IPCI	C01G0023-053 [ICM,7]; C01G0025-02 [ICS,7]; C01G0025-00 [ICS,7,C*]; C01G0023-00 [ICS,7]; C01G0001-02 [ICS,7]
	IPCR	B82B0003-00 [I,C*]; B82B0003-00 [I,A]; C01B0013-36 [I,C*]; C01B0013-36 [I,A]; C01G0001-02 [I,C*]; C01G0001-02 [I,A]; C01G0023-00 [I,C*]; C01G0023-00 [I,A]; C01G0023-053 [I,A]; C01G0025-00 [I,C*]; C01G0025-02 [I,A]
EP 1476398	IPCI	C01G0023-053 [ICM,7]; C01G0025-02 [ICS,7]; C01G0025-00 [ICS,7,C*]; C01G0023-00 [ICS,7]; C01G0001-02 [ICS,7]
	IPCR	B82B0003-00 [I,C*]; B82B0003-00 [I,A]; C01B0013-36 [I,C*]; C01B0013-36 [I,A]; C01G0001-02 [I,C*]; C01G0001-02 [I,A]; C01G0023-00 [I,C*]; C01G0023-00 [I,A]; C01G0023-053 [I,A]; C01G0025-00 [I,C*]; C01G0025-02 [I,A]
JP 2005528309	IPCI	C01G0023-053 [ICM,7]; C01G0023-00 [ICM,7,C*]; B82B0003-00 [ICS,7]; C01B0013-36 [ICS,7]
	IPCR	C01G0001-02 [I,A]; C01G0001-02 [I,C*]; C01G0023-00 [I,A]; C01G0023-00 [I,C*]; C01G0023-053 [I,A]; C01G0025-00 [I,C*]; C01G0025-02 [I,A]
	FTERM	4G042/DA02; 4G042/DB11; 4G042/DD04; 4G042/DE09; 4G047/CA02; 4G047/CA05; 4G047/CB06; 4G047/CB09; 4G047/CD04
US 2005233146	IPCI	C01G0023-00 [ICM,7]
	IPCR	B82B0003-00 [I,C*]; B82B0003-00 [I,A]; C01B0013-36 [I,C*]; C01B0013-36 [I,A]; C01G0001-02 [I,C*]; C01G0001-02 [I,A]; C01G0023-00 [I,C*]; C01G0023-00 [I,A]; C01G0023-053 [I,A]; C01G0025-00 [I,C*]; C01G0025-02 [I,A]
	NCL	428/402.000; 423/598.000; 502/350.000
AB	Nanoscale rutile (TiO <sub>2</sub> ) is prepared from amorphous TiO <sub>2</sub> by mixing an alc. solution with a titanium alcoholate (and, optionally, a second alcoholate) and adding water and acid. The amorphous TiO <sub>2</sub> is then either recovered by removal of solvent or by crystallization from the solvent, and then redispersed in	
	water in the presence of a tin salt. A thermal or hydrothermal post-treatment yields rutile or an oxide that can be redispersed to the desired particle size (5-20 nm). The redispersed rutile or the obtained oxide, with primary particle size 5-20 nm, can be incorporated into all organic matrixes so that they remain transparent. Photocatalytic activity is suppressed by lattice doping with trivalent ions. A variation of the alcoholates allows production of the following components: ZrO <sub>2</sub> , ZnO, SnO <sub>2</sub> , ATO (antimony tin oxide), In <sub>2</sub> O <sub>3</sub> , ITO (indium tin oxide), Y <sub>2</sub> O <sub>3</sub> , BaO, CaO, MgO, CeO <sub>2</sub> , and BaTiO <sub>3</sub> .	
ST	nanoparticle rutile photoinactive filler; metal oxide nanoparticle synthesis filler	
IT	Titanates	
	RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)	
	(alkoxides, titanium source; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)	
IT	Zirconates	
	RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)	
	(alkoxides, zirconium source; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)	
IT	Metal alkoxides	
	RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)	
	(aluminum, aluminum source; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)	
IT	Metal alkoxides	
	RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)	

(metal source; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)

IT Alcohols, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (solvents; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)

IT Nanoparticles  
 (synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)

IT Metal alkoxides  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
 (titanium, titanium source; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)

IT Fillers  
 (transparent; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)

IT Metal alkoxides  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
 (yttrium; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)

IT Metal alkoxides  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
 (zirconium, zirconium source; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)

IT 7429-90-5D, Aluminum, alcoholates  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
 (aluminum source; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)

IT 1304-28-5P, Barium oxide, preparation 1305-78-8P, Calcium oxide, preparation 1306-38-3P, Cerium dioxide, preparation 1309-48-4P, Magnesium oxide, preparation 1312-43-2P, Indium oxide (In2O3) 1314-13-2P, Zinc oxide, preparation 1314-36-9P, Yttrium oxide (Y2O3), preparation 1317-80-2P, Rutile 12047-27-7P, Barium titanate (BaTiO3), preparation 12673-86-8P, Antimony tin oxide 18282-10-5P, Tin dioxide 50926-11-9P, Indium tin oxide  
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)  
 (nanoscale; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)

IT 75-09-2, Dichloromethane, uses 109-99-9, Tetrahydrofuran, uses 1344-13-4, Tin chloride 7440-31-5D, Tin, salts 7647-14-5, Sodium chloride, uses 10031-62-6, Tin sulfate 12125-02-9, Ammonium chloride, uses 14536-20-0  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (redispersion solns. containing; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)

IT 7440-32-6D, Titanium, alcoholates  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
 (titanium source; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)

IT 7440-65-5D, Yttrium, alcoholates  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
 (yttrium source; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)

IT 7440-67-7D, Zirconium, alcoholates  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)  
 (zirconium source; synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

- (1) Arney, D; WO 0006495 A 2000 CAPLUS  
(2) Chemseddine, A; EUR J INORG CHEM 1999, P235 CAPLUS  
(3) Cheng, H; CHEM MATER 1995, V7(4), P663 CAPLUS  
(4) Kronos Int Inc; DE 4105345 A 1992 CAPLUS  
(5) Lee, S; J PHOCHEM AND PHOTOBIOLOG A: CHEMISTRY 2001, V146, P121 CAPLUS

ACCESSION NUMBER: 2003:656693 CAPLUS

DOCUMENT NUMBER: 139:182379

TITLE: Synthesis and use of nanoscale rutile or nanoscale metal oxides as photo-inactive transparent fillers

INVENTOR(S): Nonninger, Ralph

PATENT ASSIGNEE(S): ITN-Nanovation G.m.b.H., Germany

SOURCE: PCT Int. Appl., 26 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003068682	A1	20030821	WO 2002-DE3188	20020830
W:			AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW	
RW:			GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG	
DE 10205920	A1	20030821	DE 2002-10205920	20020212
AU 2002333172	A1	20030904	AU 2002-333172	20020830
EP 1476398	A1	20041117	EP 2002-806790	20020830
R:			AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK	
JP 2005528309	T	20050922	JP 2003-567825	20020830
US 2005233146	A1	20051020	US 2005-503627	20050606
PRIORITY APPLN. INFO.:			DE 2002-10205920	A 20020212
			WO 2002-DE3188	W 20020830

AB Nanoscale rutile (TiO<sub>2</sub>) is prepared from amorphous TiO<sub>2</sub> by mixing an alc. solution with a titanium alcoholate (and, optionally, a second alcoholate) and adding water and acid. The amorphous TiO<sub>2</sub> is then either recovered by removal of solvent or by crystallization from the solvent, and then redispersed in water in the presence of a tin salt. A thermal or hydrothermal post-treatment yields rutile or an oxide that can be redispersed to the desired particle size (5-20 nm). The redispersed rutile or the obtained oxide, with primary particle size 5-20 nm, can be incorporated into all organic matrixes so that they remain transparent. Photocatalytic activity is suppressed by lattice doping with trivalent ions. A variation of the alcoholates allows production of the following components: ZrO<sub>2</sub>, ZnO, SnO<sub>2</sub>, ATO (antimony tin oxide), In<sub>2</sub>O<sub>3</sub>, ITO (indium tin oxide), Y<sub>2</sub>O<sub>3</sub>, BaO, CaO, MgO, CeO<sub>2</sub>, and BaTiO<sub>3</sub>.

L5 ANSWER 11 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:593025 CAPLUS

DN 133:179813

ED Entered STN: 25 Aug 2000

TI Preparation of precipitated zinc oxide nanoparticles by alkaline hydrolysis, flocculation, gel formation, and sol redispersion

IN Womelsdorf, Hermann; Hoheisel, Werner; Passing, Gerd

PA Bayer A.-G., Germany  
 SO Ger. Offen., 4 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 IC ICM C01G009-02  
 ICS C08K003-22; A61K007-40  
 CC 49-3 (Industrial Inorganic Chemicals)  
 Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19907704	A1	20000824	DE 1999-19907704	19990223
	WO 2000050503	A1	20000831	WO 2000-EP1116	20000211
	W:			AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM	
	RW:			GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG	
	EP 1157064	A1	20011128	EP 2000-907548	20000211
	EP 1157064	B1	20040901		
	R:			AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO	
	JP 2002537219	T	20021105	JP 2000-601074	20000211
	AT 275166	T	20040915	AT 2000-907548	20000211
	ES 2228470	T3	20050416	ES 2000-907548	20000211
	TW 225470	B	20041221	TW 2000-89102918	20000221
	US 6710091	B1	20040323	US 2001-913990	20010821
PRAI	DE 1999-19907704	A	19990223		
	WO 2000-EP1116	W	20000211		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 19907704	ICM	C01G009-02
	ICS	C08K003-22; A61K007-40
	IPCI	C01G0009-02 [ICM,7]; C01G0009-00 [ICM,7,C*]; C08K0003-22 [ICS,7]; C08K0003-00 [ICS,7,C*]; A61K0007-40 [ICS,7]
	IPCR	A61K0008-04 [I,A]; A61K0008-04 [I,C*]; A61K0008-19 [I,C*]; A61K0008-27 [I,A]; A61Q0017-04 [I,A]; A61Q0017-04 [I,C*]; C01G0009-00 [I,C*]; C01G0009-02 [I,A]; C08K0003-00 [I,C*]; C08K0003-22 [I,A]
	ECLA	A61K008/27; C08K003/22; A61Q017/04; C01G009/02; A61K008/04H
WO 2000050503	IPCI	C08K0003-22 [ICM,7]; C08K0003-00 [ICM,7,C*]; A61K0007-48 [ICS,7]; C01G0009-02 [ICS,7]; C01G0009-00 [ICS,7,C*]
	IPCR	A61K0008-04 [I,A]; A61K0008-04 [I,C*]; A61K0008-19 [I,C*]; A61K0008-27 [I,A]; A61Q0017-04 [I,A]; A61Q0017-04 [I,C*]; C01G0009-00 [I,C*]; C01G0009-02 [I,A]; C08K0003-00 [I,C*]; C08K0003-22 [I,A]
	ECLA	A61K008/04H; C08K003/22; A61K008/27; A61Q017/04; C01G009/02
EP 1157064	IPCI	C08K0003-22 [ICM,6]; C08K0003-00 [ICM,6,C*]; A61K0007-48 [ICS,6]; C01G0009-02 [ICS,6]; C01G0009-00 [ICS,6,C*]
	IPCR	A61K0008-04 [I,A]; A61K0008-04 [I,C*]; A61K0008-19 [I,C*]; A61K0008-27 [I,A]; A61Q0017-04 [I,A]; A61Q0017-04 [I,C*]; C01G0009-00 [I,C*]; C01G0009-02 [I,A]; C08K0003-00 [I,C*]; C08K0003-22 [I,A]
JP 2002537219	IPCI	C01G0009-02 [ICM,7]; C01G0009-00 [ICM,7,C*];

		B82B0003-00 [ICS,7]; C08K0003-22 [ICS,7]; C08K0003-00 [ICS,7,C*]; C08L0101-00 [ICS,7]
	IPCR	A61K0008-04 [I,A]; A61K0008-04 [I,C*]; A61K0008-19 [I,C*]; A61K0008-27 [I,A]; A61Q0017-04 [I,A]; A61Q0017-04 [I,C*]; C01G0009-00 [I,C*]; C01G0009-02 [I,A]; C08K0003-00 [I,C*]; C08K0003-22 [I,A]
AT 275166	IPCI	C08K0003-22 [ICM,7]; C08K0003-00 [ICM,7,C*]; A61K0007-48 [ICS,7]; C01G0009-02 [ICS,7]; C01G0009-00 [ICS,7,C*]
ES 2228470	IPCI	C08K0003-22 [ICM,7]; C08K0003-00 [ICM,7,C*]; A61K0007-48 [ICS,7]; C01G0009-02 [ICS,7]; C01G0009-00 [ICS,7,C*]
	IPCR	A61K0008-04 [I,A]; A61K0008-04 [I,C*]; A61K0008-19 [I,C*]; A61K0008-27 [I,A]; A61Q0017-04 [I,A]; A61Q0017-04 [I,C*]; C01G0009-00 [I,C*]; C01G0009-02 [I,A]; C08K0003-00 [I,C*]; C08K0003-22 [I,A]
TW 225470	IPCI	C01G0009-00 [ICM,7]
	IPCR	A61K0008-04 [I,A]; A61K0008-04 [I,C*]; A61K0008-19 [I,C*]; A61K0008-27 [I,A]; A61Q0017-04 [I,A]; A61Q0017-04 [I,C*]; C01G0009-00 [I,C*]; C01G0009-02 [I,A]; C08K0003-00 [I,C*]; C08K0003-22 [I,A]
US 6710091	IPCI	B01F0003-12 [ICM,7]; C01G0009-02 [ICS,7]; C01G0009-00 [ICS,7,C*]
	IPCR	A61K0008-04 [I,C*]; A61K0008-04 [I,A]; A61K0008-19 [I,C*]; A61K0008-27 [I,A]; A61Q0017-04 [I,C*]; A61Q0017-04 [I,A]; C01G0009-00 [I,C*]; C01G0009-02 [I,A]; C08K0003-00 [I,C*]; C08K0003-22 [I,A]
	NCL	516/033.000; 423/101.000; 423/102.000; 423/104.000; 423/622.000; 516/088.000; 516/098.000
	ECLA	A61K008/04H; A61K008/27; A61Q017/04; C01G009/02; C08K003/22

AB Precipitated zinc oxide nanoparticles, with average particle diameter <10 nm, are easily redispersible, primarily as a sol, in organic solvents, water, solvent mixts., and solvent mixts. containing surface-modifying substances. The ZnO nanoparticles are prepared by alkaline hydrolysis in alc. solution, in which the ppts. formed during alkaline hydrolysis are aged until the ZnO is completely flocculated, which is then compressed to a gel form, and separated from the supernatant that contains the byproducts. The ZnO sols are prepared from the gel-like precipitated zinc oxide by treatment of the ppts. with an organic solvent, a solvent mixture, or water, or a water-alc. mixture containing a surface-modifying substance. Suitable solvents are methylene chloride or chloroform. These precipitated ZnO nanoparticles are used for matrix modification of polymers, resins, and coatings as well as for the UV protection of polymers, resins, coatings, and UV-sensitive organic pigments.

ST zinc oxide nanoparticle prepn use; sol pptn

IT redispersion zinc oxide nanoparticle

IT Hydrolysis  
(base, of zinc salts; preparation of precipitated zinc oxide nanoparticles by alkaline hydrolysis, flocculation, gel formation, and sol redispersion)

IT Precipitation (chemical)  
(of aged zinc oxide flocculates; preparation of precipitated zinc oxide nanoparticles by alkaline hydrolysis, flocculation, gel formation, and sol redispersion)

IT Pigments, nonbiological  
(organic, zinc oxide nanoparticles as UV stabilizers for; preparation of precipitated zinc oxide nanoparticles by alkaline hydrolysis, flocculation, gel formation, and sol redispersion)

IT Flocculation  
(preparation of precipitated zinc oxide nanoparticles by alkaline hydrolysis, flocculation, gel formation, and sol redispersion)

)

IT Polymers, miscellaneous  
 RL: MSC (Miscellaneous)  
 (zinc oxide nanoparticles as matrix modifiers for;  
 preparation of precipitated zinc oxide nanoparticles by alkaline  
 hydrolysis, flocculation, gel formation, and sol redispersion  
 )

IT Coating materials  
 Fillers  
 UV stabilizers  
 (zinc oxide nanoparticles; preparation of precipitated  
 zinc oxide nanoparticles by alkaline hydrolysis,  
 flocculation, gel formation, and sol redispersion)

IT Colloids  
 Nanoparticles  
 Sols  
 (zinc oxide; preparation of precipitated zinc  
 oxide nanoparticles by alkaline hydrolysis, flocculation, gel  
 formation, and sol redispersion)

IT 5970-45-6, Zinc acetate dihydrate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (alkaline hydrolysis of; preparation of precipitated zinc oxide  
 nanoparticles by alkaline hydrolysis, flocculation, gel formation, and sol  
 redispersion)

IT 1310-58-3, Potassium hydroxide, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (alkaline hydrolysis with; preparation of precipitated zinc oxide  
 nanoparticles by alkaline hydrolysis, flocculation, gel formation, and sol  
 redispersion)

IT 1314-13-2P, Zinc oxide, preparation  
 RL: NUU (Other use, unclassified); PRP (Properties); SPN (Synthetic  
 preparation); PREP (Preparation); USES (Uses)  
 (preparation of precipitated zinc oxide nanoparticles by alkaline  
 hydrolysis, flocculation, gel formation, and sol redispersion  
 )

IT 67-56-1, Methanol, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (solvent, alkaline hydrolysis in presence of; preparation of precipitated

zinc  
 oxide nanoparticles by alkaline hydrolysis, flocculation, gel  
 formation, and sol redispersion)

IT 67-66-3, Chloroform, uses 75-09-2, Methylene chloride, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (solvent, for preparation of zinc oxide sol; preparation of  
 precipitated zinc oxide nanoparticles by alkaline hydrolysis,  
 flocculation, gel formation, and sol redispersion)

ACCESSION NUMBER: 2000:593025 CAPLUS

DOCUMENT NUMBER: 133:179813

TITLE: Preparation of precipitated zinc  
 oxide nanoparticles by alkaline hydrolysis,  
 flocculation, gel formation, and sol  
 redispersion

INVENTOR(S): Womelsdorf, Hermann; Hoheisel, Werner; Passing, Gerd

PATENT ASSIGNEE(S): Bayer A.-G., Germany

SOURCE: Ger. Offen., 4 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
DE 19907704	A1	20000824	DE 1999-19907704	19990223
WO 2000050503	A1	20000831	WO 2000-EP1116	20000211



W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

EP 1157064 A1 20011128 EP 2000-907548 20000211

EP 1157064 B1 20040901

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

JP 2002537219 T 20021105 JP 2000-601074 20000211

AT 275166 T 20040915 AT 2000-907548 20000211

ES 2228470 T3 20050416 ES 2000-907548 20000211

TW 225470 B 20041221 TW 2000-89102918 20000221

US 6710091 B1 20040323 US 2001-913990 20010821

PRIORITY APPLN. INFO.: DE 1999-19907704 A 19990223

WO 2000-EP1116 W 20000211

AB Precipitated zinc oxide nanoparticles, with average particle diameter <10 nm, are easily redispersible, primarily as a sol, in organic solvents, water, solvent mixts., and solvent mixts. containing surface-modifying substances. The ZnO nanoparticles are prepared by alkaline hydrolysis in alc. solution, in which the ppts. formed during alkaline hydrolysis are aged until the ZnO is completely flocculated, which is then compressed to a gel form, and separated from the supernatant that contains the byproducts. The ZnO sols are prepared from the gel-like precipitated zinc oxide by treatment of the ppts. with an organic solvent, a solvent mixture, or water, or a water-alc. mixture containing a surface-modifying substance. Suitable solvents are methylene chloride or chloroform. These precipitated ZnO nanoparticles are used for matrix modification of polymers, resins, and coatings as well as for the UV protection of polymers, resins, coatings, and UV-sensitive organic pigments.

L5 ANSWER 12 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1998:406685 CAPLUS

DN 129:141102

ED Entered STN: 03 Jul 1998

TI Synthesis and Growth of ZnO Nanoparticles

AU Meulen Kamp, Eric A.

CS Philips Research Laboratories, Eindhoven, 5656 AA, Neth.

SO Journal of Physical Chemistry B (1998), 102(29), 5566-5572

CODEN: JPCBFK; ISSN: 1089-5647

PB American Chemical Society

DT Journal

LA English

CC 66-4 (Surface Chemistry and Colloids)

AB ZnO nanoparticles in the size range from 2 to 7 nm were prepared by addition of LiOH to an EtOH-Zn acetate solution. This method [Spanhel, L.; Anderson, M. A. J. Am. Chemical Society 1991, 113, 2826] was modified and extended at several points. The synthesis of very small ZnO nuclei was simplified. Aging of particles was governed by temperature, the H2O content, and the presence of reaction products. H2O and acetate induced considerably accelerated particle growth. Growth could almost be stopped by removal of these species (washing). Washing consisted of repeated precipitation of ZnO by addition of alkanes such as heptane, removal of the supernatant, and redispersion in EtOH. The aging characteristics are interpreted in terms of the concentration of dissolved ZnII species and reactions known in sol-gel chemical. These findings present a better-defined and more versatile procedure for production of clean ZnO sols of readily adjustable particle size. Such sols are of particular interest for studies of elec. and optical properties of

ZnO nanoparticle films. For example, films exhibiting >99% transparency in the visible region could only be obtained by deposition from a washed soluble

ST sol gel processing zinc oxide nanoparticle  
IT Particle size  
    (of zinc oxide nanoparticle in sol)  
IT UV absorption  
    (of zinc oxide nanoparticle sols)  
IT Band gap  
    (optical; of zinc oxide nanoparticle sols)  
IT Dispersion (of materials)  
    (re-; precipitation and redispersion of zinc oxide nanoparticles)  
IT Nanoparticles  
    Sol-gel processing  
        (synthesis and growth of ZnO nanoparticles by sol gel processing)  
IT 1314-13-2, Zinc oxide (ZnO), properties  
    RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)  
        (synthesis and growth of ZnO nanoparticles by sol gel processing)

RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Bahnemann, D; J Phys Chem 1987, V91, P3789 CAPLUS
- (2) Boukari, H; Chem Mater 1997, V9, P2376 CAPLUS
- (3) Brinker, C; Sol-Gel Science 1990
- (4) Chopra, K; Thin Solid Films 1983, V102, P1 CAPLUS
- (5) Colvin, V; Nature 1994, V370, P354 CAPLUS
- (6) Edelstein, A; Nanomaterials: Synthesis, Properties and Applications 1996
- (7) Griswold, E; J Am Chem Soc 1945, V67, P763 CAPLUS
- (8) Gupta, T; J Am Ceram Soc 1990, V73, P1817 CAPLUS
- (9) Haase, M; J Phys Chem 1988, V92, P482 CAPLUS
- (10) Hiltunen, L; Acta Chem Scand, Ser 1987, VA41, P548 CAPLUS
- (11) Hoyer, P; Ber Bunsen-Ges Chem Phys Chem 1993, V97, P630 CAPLUS
- (12) Hoyer, P; Chem Phys Lett 1994, V221, P379 CAPLUS
- (13) Hoyer, P; J Phys Chem 1995, V99, P14096 CAPLUS
- (14) Iler, R; The Chemistry of Silica-Solubility, Polymerization, Colloid and Surface Properties, and Biochemistry 1979
- (15) Koch, U; Chem Phys Lett 1985, V122, P507 CAPLUS
- (16) Kunkely, H; J Chem Soc, Chem Commun 1990, P1204 CAPLUS
- (17) Lee, J; J Mater Res 1995, V10, P2295 CAPLUS
- (18) Meulenkamp, E; Submitted to J Phys Chem B
- (19) Meulenkamp, E; To be published
- (20) Moritz, T; J Phys Chem B 1997, V101, P8052 CAPLUS
- (21) Murray, C; J Am Chem Soc 1993, V115, P8706 CAPLUS
- (22) O'Regan, B; Nature 1991, V353, P737 CAPLUS
- (23) Ptatschek, V; Ber Bunsen-Ges Phys Chem 1998, V102, P85 CAPLUS
- (24) Redmond, G; J Phys Chem 1993, V97, P11081 CAPLUS
- (25) Rensmo, H; J Phys Chem B 1997, V101, P2598 CAPLUS
- (26) Sakohara, S; J Phys Chem 1992, V96, P11086 CAPLUS
- (27) Schmidt, T; Chem Mater 1998, V10, P65 CAPLUS
- (28) Siegel, R; Mater Sci Eng A 1993, V168, P189
- (29) Spanhel, L; J Am Chem Soc 1991, V113, P2826 CAPLUS
- (30) Steigerwald, M; Acc Chem Res 1990, V23, P183 CAPLUS
- (31) van Blaaderen, A; J Colloid Interface Sci 1992, V154, P481 CAPLUS
- (32) Vossmeier, T; J Phys Chem 1994, V98, P7665 CAPLUS

ACCESSION NUMBER: 1998:406685 CAPLUS

DOCUMENT NUMBER: 129:141102

TITLE: Synthesis and Growth of ZnO Nanoparticles

AUTHOR(S): Meulenkamp, Eric A.

CORPORATE SOURCE: Philips Research Laboratories, Eindhoven, 5656 AA, Neth.

SOURCE: Journal of Physical Chemistry B (1998), 102(29), 5566-5572

CODEN: JPCBFK; ISSN: 1089-5647

PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB ZnO nanoparticles in the size range from 2 to 7 nm were prepared by addition of LiOH to an EtOH-Zn acetate solution. This method [Spanhel, L.; Anderson, M. A. J. Am. Chemical Society 1991, 113, 2826] was modified and extended at several points. The synthesis of very small ZnO nuclei was simplified. Aging of particles was governed by temperature, the H<sub>2</sub>O content, and the presence of reaction products. H<sub>2</sub>O and acetate induced considerably accelerated particle growth. Growth could almost be stopped by removal of these species (washing). Washing consisted of repeated precipitation of ZnO by addition of alkanes such as heptane, removal of the supernatant, and redispersion in EtOH. The aging characteristics are interpreted in terms of the concentration of dissolved ZnII species and reactions known in sol-gel chemical. These findings present a better-defined and more versatile procedure for production of clean ZnO sols of readily adjustable particle size. Such sols are of particular interest for studies of elec. and optical properties of ZnO nanoparticle films. For example, films exhibiting >99% transparency in the visible region could only be obtained by deposition from a washed soluble

L5 ANSWER 13 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1998:374162 CAPLUS

DN 129:9090

ED Entered STN: 19 Jun 1998

TI Effects of reduction and regeneration conditions on the activity of CuO-ZnO catalysts

AU Quincoces, C. E.; Amadeo, N. E.; Gonzalez, M. G.

CS UNLP-CONICET, La Plata, 1900, Argent.

SO Studies in Surface Science and Catalysis (1997), 111(Catalyst Deactivation 1997), 535-541

CODEN: SSCTDM; ISSN: 0167-2991

PB Elsevier Science B.V.

DT Journal

LA English

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)

AB The influence of thermal and hydrothermal treatments and reduction processes on the activity of CuO-ZnO catalysts was studied.

Temperature-programmed reduction (TPR) was used in the study of catalyst activation

with different reduction mixts. A mixture of H<sub>2</sub> and N<sub>2</sub> in the range of 500 to 573 K was the most effective reducing agent. High temperature, water vapor and a high partial pressure of hydrogen enhance Cu sintering and Cu-Zn alloy formation with a decrease in catalytic activity. XRD anal. of reactivated catalysts showed that their deactivation can be related to the formation of surface spinel species. Reoxidn. at 623 K and subsequent reduction of the aged catalyst led to metal redispersion but not catalyst regeneration.

ST redn activity copper zinc oxide catalyst; regeneration

activity copper zinc oxide catalyst

IT Sintering

Water gas shift reaction catalysts

(effects of reduction and regeneration conditions on activity of CuO-ZnO catalysts)

IT Reduction

(thermal; effects of reduction and regeneration conditions on activity of CuO-ZnO catalysts)

IT 11143-56-9

RL: CAT (Catalyst use); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); FORM (Formation, nonpreparative); PROC (Process); USES (Uses)

(effects of reduction and regeneration conditions on activity of CuO-ZnO catalysts)

IT 1314-13-2, Zinc oxide, uses 1317-38-0, Copper  
oxide(cuo), uses 1344-28-1, Alumina, uses  
RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process);  
PRP (Properties); PROC (Process); USES (Uses)  
(effects of reduction and regeneration conditions on activity of CuO-  
ZnO catalysts)  
IT 7727-37-9, Nitrogen, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(effects of reduction and regeneration conditions on activity of CuO-  
ZnO catalysts)  
IT 1333-74-0, Hydrogen, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(effects of reduction and regeneration conditions on activity of CuO-  
ZnO catalysts)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

- (1) Alvarez, A; Powder Diffract 1987, V2, P220 CAPLUS
- (2) Anon; Power Diffraction File - 2, ICD Data 1995, P19
- (3) Fierro, G; Appl Catal 1996, V137, P327 CAPLUS
- (4) Friedman, R; J Catal 1978, V55, P10 CAPLUS
- (5) Kanai, Y; Cat Letters 1994, V27, P67 CAPLUS
- (6) Laine, J; J Catal 1991, V129, P297 CAPLUS
- (7) Lo Jacono, M; J Catal 1982, V76, P320 CAPLUS
- (8) Moretti, G; Appl Surf Sci 1990, V45, P341 CAPLUS
- (9) Pearson, W; A Handbook of Lattice Spacing of Metals and Alloys 1973
- (10) Porta, P; J Mater Chem 1993, V3, P505 CAPLUS
- (11) Sengupta, G; J Catal 1981, V67, P223 CAPLUS
- (12) Sengupta, G; J Catal 1981, V67, P233
- (13) van Herwijnen, T; J Catal 1974, V34, P209 CAPLUS
- (14) Young, P; Chem Eng Prog V69

ACCESSION NUMBER: 1998:374162 CAPLUS

DOCUMENT NUMBER: 129:9090

TITLE: Effects of reduction and regeneration conditions on  
the activity of CuO-ZnO catalysts

AUTHOR(S): Quincoces, C. E.; Amadeo, N. E.; Gonzalez, M. G.

CORPORATE SOURCE: UNLP-CONICET, La Plata, 1900, Argent.

SOURCE: Studies in Surface Science and Catalysis (1997),  
111(Catalyst Deactivation 1997), 535-541

CODEN: SSCTDM; ISSN: 0167-2991

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The influence of thermal and hydrothermal treatments and reduction processes  
on the activity of CuO-ZnO catalysts was studied.

Temperature-programmed reduction (TPR) was used in the study of catalyst  
activation

with different reduction mixts. A mixture of H<sub>2</sub> and N<sub>2</sub> in the range of 500 to  
573 K was the most effective reducing agent. High temperature, water vapor and  
a high partial pressure of hydrogen enhance Cu sintering and Cu-Zn alloy  
formation with a decrease in catalytic activity. XRD anal. of reactivated  
catalysts showed that their deactivation can be related to the formation  
of surface spinel species. Reoxidn. at 623 K and subsequent reduction of the  
aged catalyst led to metal redispersion but not catalyst  
regeneration.

L5 ANSWER 14 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1995:742638 CAPLUS

DN 123:115526

ED Entered STN: 18 Aug 1995

TI Blue pigment slurries and their manufacture

IN Mizukami, Tomohito; Funayama, Chihito; Terada, Hiromi; Nishio, Akira

PA Kasei Optonix, Japan; Dainichiseika Color Chem

SO Jpn. Kokai Tokkyo Koho, 2 pp.

CODEN: JKXXAF

DT Patent

LA Japanese  
IC ICM C09C001-30  
ICS C09C001-30; C09K011-02  
CC 42-6 (Coatings, Inks, and Related Products)  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07070466	A	19950314	JP 1993-148931	19930621
PRAI	JP 1993-148931		19930621		

CLASS

	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	JP 07070466	ICM	C09C001-30
		ICS	C09C001-30; C09K011-02
		IPCI	C09C0001-30 [ICM,6]; C09C0001-30 [ICS,6]; C09C0001-28 [ICS,6,C*]; C09K0011-02 [ICS,6]
		IPCR	C09C0001-30 [I,A]; C09C0001-28 [I,C*]; C09C0001-28 [I,A]; C09K0011-02 [I,C*]; C09K0011-02 [I,A]
AB	Title slurries with good re-dispersibility are prepared by wet dispersing CoO.ZnO.SiO2 particles in the presence of organic acids or H3PO4. Ball-milling 1.2- $\mu$ m CoO .ZnO.SiO2 particles with water and citric acid at 110 rpm for 5 h to form 0.4- $\mu$ m particles and setting at room temperature for 24 h gave soft and re-dispersible precipitate		
ST	redispersibility cobalt zinc silicon oxide pigment; org acid manuf redispersible blue pigment; citric acid manuf redispersible blue pigment		
IT	Pigments		
	(manufacture of re-dispersible blue cobalt zinc silicon oxide pigments)		
IT	Carboxylic acids, uses		
	RL: NUU (Other use, unclassified); USES (Uses)		
	(manufacture of re-dispersible blue cobalt zinc silicon oxide pigments)		
IT	77-92-9, Citric acid, uses 7664-38-2, Phosphoric acid, uses		
	RL: NUU (Other use, unclassified); USES (Uses)		
	(manufacture of re-dispersible blue cobalt zinc silicon oxide pigments)		
IT	155949-59-0, Cobalt silicon zinc oxide		
	RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)		
	(manufacture of re-dispersible blue cobalt zinc silicon oxide pigments)		

ACCESSION NUMBER: 1995:742638 CAPLUS  
DOCUMENT NUMBER: 123:115526  
TITLE: Blue pigment slurries and their manufacture  
INVENTOR(S): Mizukami, Tomohito; Funayama, Chihito; Terada, Hiromi; Nishio, Akira  
PATENT ASSIGNEE(S): Kasei Optonix, Japan; Dainichiseika Color Chem  
SOURCE: Jpn. Kokai Tokkyo Koho, 2 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	JP 07070466	A	19950314	JP 1993-148931	19930621
PRIORITY APPLN. INFO.:				JP 1993-148931	19930621

AB Title slurries with good re-dispersibility are prepared by wet dispersing CoO.ZnO.SiO2 particles in the presence of organic acids or H3PO4. Ball-milling 1.2- $\mu$ m CoO .ZnO.SiO2 particles with water and citric acid at 110 rpm for 5 h to form 0.4- $\mu$ m particles and setting at room temperature for 24 h gave soft and re-dispersible precipitate

L5 ANSWER 15 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1992:97969 CAPLUS  
DN 116:97969  
ED Entered STN: 06 Mar 1992

TI In situ use of gelatin in the preparation of uniform colloidal ferrite particles  
 IN Siiman, Olavi; Burshteyn, Alexander  
 PA Coulter Corp., USA  
 SO U.S., 7 pp.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 IC ICM B01J013-02  
 ICS C09D005-23  
 INCL 252315200  
 CC 77-3 (Magnetic Phenomena)  
 Section cross-reference(s): 66  
 FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5062991	A	19911105	US 1990-532434	19900604
	CA 2084414	A1	19911205	CA 1991-2084414	19910531
	CA 2084414	C	19940104		
	WO 9119301	A1	19911212	WO 1991-US3866	19910531
	W: AU, CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE				
	AU 9181837	A	19911231	AU 1991-81837	19910531
	AU 654285	B2	19941103		
	EP 532684	A1	19930324	EP 1991-912637	19910531
	EP 532684	B1	19950809		
	R: AT, CH, DE, DK, ES, FR, GB, IT, LI, SE				
	JP 05509203	T	19931216	JP 1991-513035	19910531
	ES 2077235	T3	19951116	ES 1991-912637	19910531
	US 5240640	A	19930831	US 1991-786024	19911031
PRAI	US 1990-532434	A	19900604		
	WO 1991-US3866	A	19910531		

# CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 5062991	ICM	B01J013-02
	ICS	C09D005-23
	INCL	252315200
	IPCI	B01J0013-02 [ICM,5]; C09D0005-23 [ICS,5]
	IPCR	B01J0013-06 [I,C*]; B01J0013-06 [I,A]; B01J0013-00 [I,C*]; B01J0013-00 [I,A]; B03C0001-005 [I,C*]; B03C0001-01 [I,A]; H01F0001-032 [I,C*]; H01F0001-06 [I,A]; H01F0001-12 [I,C*]; H01F0001-26 [I,A]; H01F0001-44 [I,C*]; H01F0001-44 [I,A]
CA 2084414	NCL	516/101.000; 252/062.510R; 427/213.350; 428/403.000
	IPCR	B01J0013-06 [I,C*]; B01J0013-06 [I,A]; B01J0013-00 [I,C*]; B01J0013-00 [I,A]; B03C0001-005 [I,C*]; B03C0001-01 [I,A]; H01F0001-032 [I,C*]; H01F0001-06 [I,A]; H01F0001-12 [I,C*]; H01F0001-26 [I,A]; H01F0001-44 [I,C*]; H01F0001-44 [I,A]
WO 9119301	IPCI	H01F0001-26 [ICM,5]; H01F0001-12 [ICM,5,C*]; B01F0003-00 [ICS,5]; B01J0013-02 [ICS,5]; B32B0005-16 [ICS,5]
	IPCR	B01J0013-06 [I,C*]; B01J0013-06 [I,A]; B01J0013-00 [I,C*]; B01J0013-00 [I,A]; B03C0001-005 [I,C*]; B03C0001-01 [I,A]; H01F0001-032 [I,C*]; H01F0001-06 [I,A]; H01F0001-12 [I,C*]; H01F0001-26 [I,A]; H01F0001-44 [I,C*]; H01F0001-44 [I,A]
AU 9181837	IPCI	H01F0001-26 [ICM,5]; H01F0001-12 [ICM,5,C*]; B01F0003-00 [ICS,5]; B01J0013-02 [ICS,5]; B32B0005-16 [ICS,5]
	IPCR	B01J0013-06 [I,C*]; B01J0013-06 [I,A]; B01J0013-00 [I,C*]; B01J0013-00 [I,A]; B03C0001-005 [I,C*]; B03C0001-01 [I,A]; H01F0001-032 [I,C*]; H01F0001-06 [I,A]; H01F0001-12 [I,C*]; H01F0001-26 [I,A];

EP 532684	IPCI	H01F0001-44 [I,C*]; H01F0001-44 [I,A] H01F0001-26 [ICM,5]; H01F0001-12 [ICM,5,C*]; B01F0003-00 [ICS,5]; B01J0013-02 [ICS,5]; B32B0005-16 [ICS,5]
	IPCR	B01J0013-06 [I,C*]; B01J0013-06 [I,A]; B01J0013-00 [I,C*]; B01J0013-00 [I,A]; B03C0001-005 [I,C*]; B03C0001-01 [I,A]; H01F0001-032 [I,C*]; H01F0001-06 [I,A]; H01F0001-12 [I,C*]; H01F0001-26 [I,A]; H01F0001-44 [I,C*]; H01F0001-44 [I,A]
JP 05509203	IPCI	H01F0001-26 [ICM,5]; H01F0001-12 [ICM,5,C*]; B01J0013-06 [ICS,5]
	IPCR	B01J0013-06 [I,C*]; B01J0013-06 [I,A]; B01J0013-00 [I,C*]; B01J0013-00 [I,A]; B03C0001-005 [I,C*]; B03C0001-01 [I,A]; H01F0001-032 [I,C*]; H01F0001-06 [I,A]; H01F0001-12 [I,C*]; H01F0001-26 [I,A]; H01F0001-44 [I,C*]; H01F0001-44 [I,A]
ES 2077235	IPCI	H01F0001-26 [ICM,6]; B01F0003-00 [ICS,6]; B01J0013-02 [ICS,6]; B32B0005-16 [ICS,6]; H01F0001-37 [ICS,6]; H01F0001-12 [ICS,6,C*]; B03C0001-00 [ICS,6]
	IPCR	B01J0013-06 [I,C*]; B01J0013-06 [I,A]; B01J0013-00 [I,C*]; B01J0013-00 [I,A]; B03C0001-005 [I,C*]; B03C0001-01 [I,A]; H01F0001-032 [I,C*]; H01F0001-06 [I,A]; H01F0001-12 [I,C*]; H01F0001-26 [I,A]; H01F0001-44 [I,C*]; H01F0001-44 [I,A]
US 5240640	IPCI	B01J0013-10 [ICM,5]; B01J0013-06 [ICM,5,C*]; H01F0001-36 [ICS,5]; H01F0001-12 [ICS,5,C*]
	IPCR	B01J0013-00 [I,A]; B01J0013-00 [I,C*]; B03C0001-005 [I,C*]; B03C0001-01 [I,A]; G01N0033-543 [I,A]; G01N0033-543 [I,C*]; G11B0005-133 [I,A]; G11B0005-133 [I,C*]; H01F0001-032 [I,C*]; H01F0001-06 [I,A]; H01F0001-11 [I,A]; H01F0001-12 [I,C*]; H01F0001-37 [I,A]; H01F0001-44 [I,A]; H01F0001-44 [I,C*]
	NCL	516/101.000; 252/062.510R; 252/062.530; 252/062.540; 427/213.300; 428/402.000; 428/403.000; 436/526.000; 516/100.000
AB	A 1st solution of KNO <sub>3</sub> and KOH or NaNO <sub>3</sub> and NaOH, which has been N purged, is mixed with a 2nd solution of a Fe <sup>2+</sup> salt, divalent metal (Mn <sup>2+</sup> , Zn <sup>2+</sup> , Co <sup>2+</sup> , Ni <sup>2+</sup> , Ba <sup>2+</sup> , or mixed Mn <sup>2+</sup> and Zn <sup>2+</sup> ) salt, and gelatin, which also has been N purged; the mixture of the 2 solns. is swept with N and ripened to form a ferrite hydrosol at a predetd. low temperature for a selected period of time; and the hydrosol is washed with the gelatin solution by magnetic separation and redispersion to form sep. ferrite particles coated with gelatin.	
ST	colloidal ferrite particle gelatin coated prepn; metal ferrite uniform colloidal particle prepn	
IT	Gelatins, uses RL: PREP (Preparation) (in preparation of uniform colloidal metal ferrite particles)	
IT	11129-48-9P, Iron zinc oxide 11138-11-7P, Barium ferrite 12023-62-0P, Iron manganese zinc oxide (Fe <sub>2</sub> Mn <sub>0.5</sub> Zn <sub>0.5</sub> O <sub>4</sub> ) 12052-28-7P, Cobalt ferrite 12063-10-4P, Manganese ferrite 12707-85-6P, Nickel ferrite RL: PREP (Preparation) (preparation of uniform colloidal particles of, in presence of gelatin)	
ACCESSION NUMBER: 1992:97969 CAPLUS		
DOCUMENT NUMBER: 116:97969		
TITLE: In situ use of gelatin in the preparation of uniform colloidal ferrite particles		
INVENTOR(S): Siiman, Olavi; Burshteyn, Alexander		
PATENT ASSIGNEE(S): Coulter Corp., USA		
SOURCE: U.S., 7 pp. CODEN: USXXAM		
DOCUMENT TYPE: Patent		
LANGUAGE: English		
FAMILY ACC. NUM. COUNT: 3		
PATENT INFORMATION:		

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5062991	A	19911105	US 1990-532434	19900604
CA 2084414	A1	19911205	CA 1991-2084414	19910531
CA 2084414	C	19940104		
WO 9119301	A1	19911212	WO 1991-US3866	19910531
W: AU, CA, JP				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE				
AU 9181837	A	19911231	AU 1991-81837	19910531
AU 654285	B2	19941103		
EP 532684	A1	19930324	EP 1991-912637	19910531
EP 532684	B1	19950809		
R: AT, CH, DE, DK, ES, FR, GB, IT, LI, SE				
JP 05509203	T	19931216	JP 1991-513035	19910531
ES 2077235	T3	19951116	ES 1991-912637	19910531
US 5240640	A	19930831	US 1991-786024	19911031
PRIORITY APPLN. INFO.:			US 1990-532434	A 19900604
			WO 1991-US3866	A 19910531
AB	A 1st solution of KNO <sub>3</sub> and KOH or NaNO <sub>3</sub> and NaOH, which has been N purged, is mixed with a 2nd solution of a Fe <sup>2+</sup> salt, divalent metal (Mn <sup>2+</sup> , Zn <sup>2+</sup> , Co <sup>2+</sup> , Ni <sup>2+</sup> , Ba <sup>2+</sup> , or mixed Mn <sup>2+</sup> and Zn <sup>2+</sup> ) salt, and gelatin, which also has been N purged; the mixture of the 2 solns. is swept with N and ripened to form a ferrite hydrosol at a predetd. low temperature for a selected period of time; and the hydrosol is washed with the gelatin solution by magnetic separation and redispersion to form sep. ferrite particles coated with gelatin.			
L5	ANSWER 16 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN			
AN	1991:516761 CAPLUS			
DN	115:116761			
ED	Entered STN: 23 Sep 1991			
TI	Regeneration of liquid-phase methanol synthesis catalyst			
AU	Lee, Byung Gwon; Lee, Sunggyu; Kulik, Conrad J.			
CS	Dep. Chem. Eng., Univ. Akron, Akron, OH, 44325, USA			
SO	Fuel Science & Technology International (1991), 9(5), 587-612			
	CODEN: FSCTEG; ISSN: 0884-3759			
DT	Journal			
LA	English			
CC	45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)			
	Section cross-reference(s): 23, 67			
OS	CASREACT 115:116761			
AB	Long-term MeOH production expts. were performed under various reaction environments in order to investigate the relation between catalytic activity and the crystallite size in the MeOH synthesis catalyst. Regeneration expts. were also conducted in order to reduce the crystallite size of the aged catalysts by inducing a metallic-phase redispersion. The drop in the hydrogenation activity was closely linked to the growth in the crystallite size in the catalyst. The crystallite size was reduced successfully by cyclic oxidation-reduction treatments and, as a result, the lost activity in aged catalysts was recovered.			
ST	methanol prepn catalyst reactivation; crystallite size hydrogenation catalyst reactivation; oxidn redn catalyst reactivation			
IT	Hydrogenation catalysts (cupric oxide-zinc oxide, for carbon oxides to methanol, reactivation of)			
IT	Crystallites (reduction in size of, in hydrogenation catalyst reactivation)			
IT	1314-13-2, Zinc oxide, uses and miscellaneous 1317-38-0, Cupric oxide, uses and miscellaneous			
	RL: CAT (Catalyst use); USES (Uses) (catalysts, for preparation of methanol from synthesis gas, deactivation by crystallite formation in, reactivation by oxidation-reduction treatment for size reduction in)			
IT	124-38-9, Carbon dioxide, reactions 630-08-0, Carbon monoxide, reactions			



RL: RCT (Reactant); RACT (Reactant or reagent)  
 (hydrogenation of, methanol from, catalysts for, reactivation by  
 crystallite size reduction in)  
 IT 67-56-1P, Methanol, preparation  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (preparation of, by carbon oxide hydrogenation, catalysts for, reactivation  
 by crystallite size reduction in)  
 ACCESSION NUMBER: 1991:516761 CAPLUS  
 DOCUMENT NUMBER: 115:116761  
 TITLE: Regeneration of liquid-phase methanol synthesis  
 catalyst  
 AUTHOR(S): Lee, Byung Gwon; Lee, Sunggyu; Kulik, Conrad J.  
 CORPORATE SOURCE: Dep. Chem. Eng., Univ. Akron, Akron, OH, 44325, USA  
 SOURCE: Fuel Science & Technology International (1991), 9(5),  
 587-612  
 CODEN: FSCTEG; ISSN: 0884-3759  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 115:116761  
 AB Long-term MeOH production expts. were performed under various reaction  
 environments in order to investigate the relation between catalytic  
 activity and the crystallite size in the MeOH synthesis catalyst.  
 Regeneration expts. were also conducted in order to reduce the crystallite  
 size of the aged catalysts by inducing a metallic-phase  
 redispersion. The drop in the hydrogenation activity was closely  
 linked to the growth in the crystallite size in the catalyst. The  
 crystallite size was reduced successfully by cyclic oxidation-reduction  
 treatments and, as a result, the lost activity in aged catalysts was  
 recovered.  
 L5 ANSWER 17 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1986:115976 CAPLUS  
 DN 104:115976  
 ED Entered STN: 05 Apr 1986  
 TI Analysis of redispersion properties of suspensions  
 AU Gorecki, Mieczyslaw  
 CS Zakl. Chem. Nieorg. Anal., Akad. Med., Poznan, Pol.  
 SO Farmacja Polska (1985), 41(4), 203-4  
 CODEN: FAPOA4; ISSN: 0014-8261  
 DT Journal  
 LA Polish  
 CC 63-5 (Pharmaceuticals)  
 AB Correlations were found between sedimentation coeffs. Vs, thixotropy  
 coeffs.  $\beta$ , redispersion coeffs. VR, and suspension concns.  
 in ZnO or BaSO<sub>4</sub> suspensions (particle size 2-9  $\mu$ m, 0.2-0.8  
 g/mL) in 1% CM-cellulose [9004-32-4] at 21°. Thus, thixotropy  
 coeffs.  $\beta$  can be used for the estimation of resuspension properties of  
 pharmaceutical suspension after long storage.  
 ST suspension sedimentation thixotropy redispersion  
 IT Sedimentation  
 Thixotropy  
 (of pharmaceutical suspensions)  
 IT Dispersion  
 (re-, of pharmaceutical suspension)  
 IT Pharmaceuticals  
 (suspensions, redispersion properties of)  
 IT 1314-13-2, biological studies 7727-43-7 9004-32-4  
 RL: BIOL (Biological study)  
 (suspensions containing, redispersion properties of)  
 ACCESSION NUMBER: 1986:115976 CAPLUS  
 DOCUMENT NUMBER: 104:115976  
 TITLE: Analysis of redispersion properties of  
 suspensions  
 AUTHOR(S): Gorecki, Mieczyslaw  
 CORPORATE SOURCE: Zakl. Chem. Nieorg. Anal., Akad. Med., Poznan, Pol.

SOURCE: Farmacja Polska (1985), 41(4), 203-4  
CODEN: FAPOA4; ISSN: 0014-8261

DOCUMENT TYPE: Journal

LANGUAGE: Polish

AB Correlations were found between sedimentation coeffs. Vs, thixotropy coeffs.  $\beta$ , redispersion coeffs. VR, and suspension concns. in ZnO or BaSO<sub>4</sub> suspensions (particle size 2-9  $\mu$ m, 0.2-0.8 g/mL) in 1% CM-cellulose [9004-32-4] at 21°. Thus, thixotropy coeffs.  $\beta$  can be used for the estimation of resuspension properties of pharmaceutical suspension after long storage.

L5 ANSWER 18 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1978:465367 CAPLUS

DN 89:65367

ED Entered STN: 12 May 1984

TI Flow equation for coagulated suspensions

AU Cooper, Peter G.; Rayner, John G.; Nicol, Stuart K.

CS Cent. Res. Lab., Broken Hill Propr. Co., Ltd., Shortland, Australia

SO Journal of the Chemical Society, Faraday Transactions 1: Physical Chemistry in Condensed Phases (1978), 74(4), 785-94

CODEN: JCFTAR; ISSN: 0300-9599

DT Journal

LA English

CC 65-1 (General Physical Chemistry)

AB An equation for the viscosity at any shear rate was developed from anal. of the coagulation-redispersion kinetics of a sheared suspension. The use of an analogy with chemical reaction kinetics attributes some phys. significance to each of the flow consts. in this equation. The technique is outlined for the determination of these flow consts. from exptl. data, and the equation was fitted to exptl. flow curves for suspensions of Fe<sub>2</sub>O<sub>3</sub> and ZnO in H<sub>2</sub>O.

ST flow shear coagulation suspension; ferric oxide suspension flow;  
zinc oxide suspension flow

IT Coagulation

(-redispersion, of sheared suspensions, flow in relation to)

IT Flow

(equations of, for sheared coagulated suspensions)

IT Suspensions

(flow of sheared coagulated, equations for)

IT 1309-37-1, properties 1314-13-2, properties

RL: PRP (Properties)

(flow of coagulated suspensions of, theor. flow equation in relation to)

ACCESSION NUMBER: 1978:465367 CAPLUS

DOCUMENT NUMBER: 89:65367

TITLE: Flow equation for coagulated suspensions

AUTHOR(S): Cooper, Peter G.; Rayner, John G.; Nicol, Stuart K.

CORPORATE SOURCE: Cent. Res. Lab., Broken Hill Propr. Co., Ltd.,  
Shortland, Australia

SOURCE: Journal of the Chemical Society, Faraday Transactions  
1: Physical Chemistry in Condensed Phases (1978),  
74(4), 785-94

CODEN: JCFTAR; ISSN: 0300-9599

DOCUMENT TYPE: Journal

LANGUAGE: English

AB An equation for the viscosity at any shear rate was developed from anal. of the coagulation-redispersion kinetics of a sheared suspension. The use of an analogy with chemical reaction kinetics attributes some phys. significance to each of the flow consts. in this equation. The technique is outlined for the determination of these flow consts. from exptl. data, and the equation was fitted to exptl. flow curves for suspensions of Fe<sub>2</sub>O<sub>3</sub> and ZnO in H<sub>2</sub>O.

L5 ANSWER 19 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1970:124991 CAPLUS

DN 72:124991  
 ED Entered STN: 12 May 1984  
 TI Behavior of stabilized lotions under thermal conditions  
 AU Rohdewald, Peter  
 CS Inst. Pharm. Chem., Westfael. Wilhelm-Univ., Muenster, Fed. Rep. Ger.  
 SO Pharmazie (1969), 24(12), 773-5  
 CODEN: PHARAT; ISSN: 0031-7144  
 DT Journal  
 LA German  
 CC 62 (Essential Oils and Cosmetics)  
 AB Zinc oxide-talc suspensions stabilized with  
 CM-cellulose, methylcellulose, propylene glycol alginate, bentonite, or  
 self-emulsifying wax were not stable on storage at 50° for 40 days.  
 The organic stabilizers caused caking of the sediment so that it could not be  
 redispersed. The wax-stabilized suspension was particularly unstable.  
 Heating at 95° for 2 hr did not decrease the stability of the  
 suspensions and improved the redispersion of the sediment.  
 Brookfield viscosity detns. gave an accurate measure of the condition of  
 the suspensions.  
 ST zinc oxide suspension stabilized; talc suspension  
 stabilized; suspension stabilized talc ZnO; stabilized  
 suspension talc ZnO  
 IT Lotions  
 (sediment caking in, stabilizer effect on)  
 IT Bentonite, uses and miscellaneous  
 Waxes  
 RL: BIOL (Biological study)  
 (stabilizers, sediment caking in lotions in relation to)  
 IT 1,2-Propanediol, alginate  
 RL: BIOL (Biological study)  
 (stabilizers, sediment caking in lotions in relation to)  
 IT 9000-11-7 9004-67-5 9005-37-2, Alginic acid, ester with  
 1,2-propanediol  
 RL: BIOL (Biological study)  
 (stabilizers, sediment caking in lotions in relation to)  
 ACCESSION NUMBER: 1970:124991 CAPLUS  
 DOCUMENT NUMBER: 72:124991  
 TITLE: Behavior of stabilized lotions under thermal  
 conditions  
 AUTHOR(S): Rohdewald, Peter  
 CORPORATE SOURCE: Inst. Pharm. Chem., Westfael. Wilhelm-Univ., Muenster,  
 Fed. Rep. Ger.  
 SOURCE: Pharmazie (1969), 24(12), 773-5  
 CODEN: PHARAT; ISSN: 0031-7144  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German  
 AB Zinc oxide-talc suspensions stabilized with  
 CM-cellulose, methylcellulose, propylene glycol alginate, bentonite, or  
 self-emulsifying wax were not stable on storage at 50° for 40 days.  
 The organic stabilizers caused caking of the sediment so that it could not be  
 redispersed. The wax-stabilized suspension was particularly unstable.  
 Heating at 95° for 2 hr did not decrease the stability of the  
 suspensions and improved the redispersion of the sediment.  
 Brookfield viscosity detns. gave an accurate measure of the condition of  
 the suspensions.  
 L5 ANSWER 20 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1969:48879 CAPLUS  
 DN 70:48879  
 ED Entered STN: 12 May 1984  
 TI Continuous hydrolysis of animal fats and oils  
 AU Jenson, Victor G.; Jeffreys, Godfrey V.; Edwards, Reginald Eric  
 CS Univ. Birmingham, Birmingham, UK  
 SO Industrie Chimique Belge (1967), 32(Spec. No.), 694-9  
 CODEN: ICBEAJ; ISSN: 0019-9052

DT Journal  
 LA English  
 CC 45 (Fats and Waxes)  
 AB A 3-in.-diameter, 8-ft.-long hydrolyzer column was set up and 16 expts. were done at various flow rates with beef tallow with or without ZnO as a catalyst. Four expts. were also done with grid plates in the column. The reaction mechanism corresponded to a 2nd-order description. Equations were set up and the exptl. data integrated. By addition of 0.3% ZnO, a 70% increase in conversion was obtained. The exptl. runs with grid plates could not be simulated on the computer due to the effect of coalescence and redispersion on the plates giving unknown mass-transfer coeffs. and interfacial areas, but the plates improved the column performance.

ST fat hydrolysis continuous; oil hydrolysis continuous; animal fat hydrolysis; beef tallow hydrolysis; hydrolysis fat oil

IT Kinetics of saponification  
 (of tallow)

IT Saponification  
 (of tallow in long columns)

IT Tallow  
 RL: USES (Uses)  
 (saponification of beef, in long columns)

IT Saponification catalysts  
 (zinc oxide, for tallow)

IT 1314-13-2, uses and miscellaneous  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalysts, for saponification of tallow)

ACCESSION NUMBER: 1969:48879 CAPLUS  
 DOCUMENT NUMBER: 70:48879  
 TITLE: Continuous hydrolysis of animal fats and oils  
 AUTHOR(S): Jenson, Victor G.; Jeffreys, Godfrey V.; Edwards, Reginald Eric  
 CORPORATE SOURCE: Univ. Birmingham, Birmingham, UK  
 SOURCE: Industrie Chimique Belge (1967), 32(Spec. No.), 694-9  
 CODEN: ICBEAJ; ISSN: 0019-9052

DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB A 3-in.-diameter, 8-ft.-long hydrolyzer column was set up and 16 expts. were done at various flow rates with beef tallow with or without ZnO as a catalyst. Four expts. were also done with grid plates in the column. The reaction mechanism corresponded to a 2nd-order description. Equations were set up and the exptl. data integrated. By addition of 0.3% ZnO, a 70% increase in conversion was obtained. The exptl. runs with grid plates could not be simulated on the computer due to the effect of coalescence and redispersion on the plates giving unknown mass-transfer coeffs. and interfacial areas, but the plates improved the column performance.

L5 ANSWER 21 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1967:509296 CAPLUS

DN 67:109296

OREF 67:20643a,20646a

ED Entered STN: 12 May 1984

TI Poly(vinyl alcohol) adhesives

PA Kurashiki Rayon Co., Ltd.

SO Brit., 3 pp.

CODEN: BRXXAA

DT Patent

LA English

IC C08F

CC 36 (Plastics Manufacture and Processing)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	GB 1081413		19670831	GB 1964-32735	19640811

DE 1594071	DE	
US 3365408	19680123	US 1964-387203
PRAI JP	19630812	19640803

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
GB 1081413	IC	C08F
	IPCI	C08F
	IPCR	C08L0033-00 [N,C*]; C08L0033-02 [N,A]; C09J0129-00 [I,C*]; C09J0129-04 [I,A]
US 3365408	IPCR	C08L0033-00 [N,C*]; C08L0033-02 [N,A]; C09J0129-00 [I,C*]; C09J0129-04 [I,A]
	NCL	524/401.000; 524/430.000; 524/431.000; 524/432.000; 524/433.000; 524/434.000; 524/435.000; 524/436.000; 524/437.000; 524/446.000; 524/447.000; 524/503.000; 525/056.000; 525/061.000

AB The title compns. are prepared from a polyvalent metal oxide or hydroxide and a poly(vinyl alc.) (I) derivative containing 5-70 mole% CO<sub>2</sub>H groups or a mixture of I and a polymer containing 5-70 mole% CO<sub>2</sub>H groups. Thus, an aqueous solution

containing 5% I and 5% poly(acrylic acid) was heated at 90° for 1 hr., 2.0% weight ZnO added and thoroughly dispersed, and the mixture allowed to stand for 3 hrs. After redispersion, the composition was spread on a poly(vinyl chloride) plate and heat-treated 3 min. at 120°, giving a film with water solubility 34.6%. An untreated film had a solubility of 90%, and

pure I, 100%. This adhesive gave an initial adhesion of 1.0 kg. between a corrugated liner and center board after 2 sec. at 120°. CaO and clay were also used, and oxides and hydroxides of Mg, Zn, Cu, Al, and Fe are claimed. Saponified vinyl acetate (II)-acrylate, II-methacrylate, II-acrylamide copolymer, or II-acrylonitrile copolymers, and I etherified with glycolic acid or acetalized with glyoxylic acid are also claimed. Saponified polyacrylamide or polyacrylonitrile can also be used as a mixture with II. These adhesives have improved water resistance, and are used for manufacturing corrugated paperboard boxes.

ST POLYVINYL ALC ADHESIVE; POLYACRYLIC ACID; ADHESIVE POLYVINYL ALC; PAPERBOARD ADHESIVE

IT Paperboard

(adhesives for corrugated, vinyl alc. polymer solns. containing carboxylic acid polymers and metal oxides as)

IT Paper

(as catalyst support for oxygen removal from, with clay)

IT Clays

RL: USES (Uses)

(coating with, of paper, adhesives for)

IT Adhesives, preparation

(from vinyl alc. polymer solns. containing carboxylic acid polymers and metal oxides)

IT Coating process

(of paper with clay, vinyl alc. polymers adhesives for)

IT 9002-89-5, uses and miscellaneous

RL: USES (Uses)

(adhesives from carboxylic acid polymers, metal oxides and)

IT 1305-78-8, uses and miscellaneous 1314-13-2, uses and miscellaneous

RL: USES (Uses)

(adhesives from vinyl alc. polymer solns. containing carboxylic acid polymers and)

IT 9003-01-4

RL: USES (Uses)

(adhesives from vinyl alc. polymer solns. containing metals oxides and)

ACCESSION NUMBER: 1967:509296 CAPLUS

DOCUMENT NUMBER: 67:109296

ORIGINAL REFERENCE NO.: 67:20643a, 20646a

TITLE: Poly(vinyl alcohol) adhesives

PATENT ASSIGNEE(S): Kurashiki Rayon Co., Ltd.  
 SOURCE: Brit., 3 pp.  
 CODEN: BRXXAA  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 1081413		19670831	GB 1964-32735	19640811
DE 1594071			DE	
US 3365408		19680123	US 1964-387203	19640803
PRIORITY APPLN. INFO.:			JP	19630812

AB The title compns. are prepared from a polyvalent metal oxide or hydroxide and a poly(vinyl alc.) (I) derivative containing 5-70 mole% CO<sub>2</sub>H groups or a mixture of I and a polymer containing 5-70 mole% CO<sub>2</sub>H groups. Thus, an aqueous solution containing 5% I and 5% poly(acrylic acid) was heated at 90° for 1 hr., 2.0% weight ZnO added and thoroughly dispersed, and the mixture allowed to stand for 3 hrs. After redispersion, the composition was spread on a poly(vinyl chloride) plate and heat-treated 3 min. at 120°, giving a film with water solubility 34.6%. An untreated film had a solubility of 90%, and pure I, 100%. This adhesive gave an initial adhesion of 1.0 kg. between a corrugated liner and center board after 2 sec. at 120°. CaO and clay were also used, and oxides and hydroxides of Mg, Zn, Cu, Al, and Fe are claimed. Saponified vinyl acetate (II)-acrylate, II-methacrylate, II-acrylamide copolymer, or II-acrylonitrile copolymers, and I etherified with glycolic acid or acetalized with glyoxylic acid are also claimed. Saponified polyacrylamide or polyacrylonitrile can also be used as a mixture with II. These adhesives have improved water resistance, and are used for manufacturing corrugated paperboard boxes.

L5 ANSWER 22 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1957:88183 CAPLUS

DN 51:88183

OREF 51:15967b-d

ED Entered STN: 22 Apr 2001

TI Applications of dry vinyl ester dispersions in coating technology

AU Grunau, E. B.

SO Farbe u. Lack (1957), 63, 345-6

DT Journal

LA Unavailable

CC 26 (Paints, Varnishes, Lacquers, and Inks)

AB Vinyl acetate powders are either difficult to redisperse or do not form a continuous film after mixing with water. An improved dry dispersion can be prepared by coating the spray dried powder at once with a fine particle-size pigment. Poly(vinyl acetate) latexes containing 12-15% plasticizer (based on total solids) and vinyl copolymers, having a particle size of 0.7 to 1.6  $\mu$ , give the best results. Fine zinc oxides are especially suitable pigments and are mixed into the dispersion by tangential blowing. From 25 to 30 parts of pigment per 100 parts emulsion solids are necessary to prevent caking. Addnl. pigments and fillers can later be blended with the dry powder. From 2 to 3.5% of solvents, glycols and ketones, should be added to the water used for redispersion of the powder to improve film formation. For viscosity control of the dispersion, dry poly(vinyl alc.) can be blended with the pigments. Dry dispersions are economical to manufacture and the paint films are equal in properties to those produced from conventional latex paints.

IT Coating(s)

(from vinyl ester dispersion in dry state)

ACCESSION NUMBER: 1957:88183 CAPLUS

DOCUMENT NUMBER: 51:88183  
ORIGINAL REFERENCE NO.: 51:15967b-d  
TITLE: Applications of dry vinyl ester dispersions in coating technology  
AUTHOR(S): Grunau, E. B.  
SOURCE: Farbe u. Lack (1957), 63, 345-6  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable

AB Vinyl acetate powders are either difficult to redisperse or do not form a continuous film after mixing with water. An improved dry dispersion can be prepared by coating the spray dried powder at once with a fine particle-size pigment. Poly(vinyl acetate) latexes containing 12-15% plasticizer (based on total solids) and vinyl copolymers, having a particle size of 0.7 to 1.6  $\mu$ , give the best results. Fine zinc oxides are especially suitable pigments and are mixed into the dispersion by tangential blowing. From 25 to 30 parts of pigment per 100 parts emulsion solids are necessary to prevent caking. Addnl. pigments and fillers can later be blended with the dry powder. From 2 to 3.5% of solvents, glycols and ketones, should be added to the water used for redispersion of the powder to improve film formation. For viscosity control of the dispersion, dry poly(vinyl alc.) can be blended with the pigments. Dry dispersions are economical to manufacture and the paint films are equal in properties to those produced from conventional latex paints.

L5 ANSWER 23 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1950:26284 CAPLUS

DN 44:26284

OREF 44:5138i,5139a-e

ED Entered STN: 22 Apr 2001

TI Structure of vulcanized latex

AU Humphreys, N. C. H.; Wake, W. C.

CS Research Assoc. Brit. Rubber Manufrs., Croydon, UK

SO Transactions, Institution of the Rubber Industry (1950), 25, 334-45

CODEN: TIRIA2; ISSN: 0371-7968

DT Journal

LA Unavailable

CC 30 (Rubber and Other Elastomers)

AB The hydrocarbon phase of latex can be regarded as an oil phase, and withdrawal of most of the aqueous phase by evaporation leaves an unstable condition

until the orientation of the interracial material changes. This takes place by a process analogous to phase inversion, whereby the remaining water diffuses through the hydrocarbon. If the protein is replaced by saponin, this reorientation is evident. Thus, when the water is still at least 1% during drying, the film can be redispersed by soaking in water; below 1% redispersion becomes impossible, and at this point the saponin mols. orient themselves to form a water in-oil type of structure. This phase inversion is evident also by a sudden increase in elec. resistivity when the water content decreases to a sufficiently low value. Latex was recreated 4 times in the presence of Na laurate to displace the protein, then vulcanized, strained, and dried at room temperature on glass plates. In another experiment, the soap was extracted by EtOH and drying was

then

completed. All films had the same strength as that of corresponding normally vulcanized films. Hence cohesion must be by ordinary chemical forces, i.e., either by primary-valence bonds or by secondary bonds or van der Waals' forces between rubber mols. Since inhibition of a solvent destroys only secondary valence bonds, the 2 possibilities were tested by swelling dried vulcanized films in C<sub>6</sub>H<sub>6</sub>. Swelling maxima were obtained which indicated cross-linking, but the phys. properties indicated the absence of primary-valence bonds between particles and their presence between particles. Hence the cohesion is attributable to van der Waals' forces between the outer mols. of the particles. All these expts. and considerations disprove theoretically and experimentally the view of

Hauser (Latex, p. 130) that adsorbed protein and other nonrubber components bond the rubber particles. Extraction with CHCl<sub>3</sub> of acetone-extracted vulcanized film gave only 0.3% extract of rubber of low mol. weight; hence, the rubber within the latex particles is vulcanized, i.e., practically completely cross-linked. To a latex mixture prepared from 167 cc. 60% latex., 1 g. ZnO, 1 g. Na diethyldithiocarbamate, 0.25 g. casein, and 0.5 g. NaOH, were added 2, 2.5, 3, 4, 10, and 50 g., resp., of S, and the mixts. were vulcanized and centrifuged. In no case was the combined S over 1.8%, based on the rubber. The stress-strain curves of the dried vulcanized films show very low moduli for low extensions after which they increase rapidly to the breaking point. The structure of films from vulcanized latex which is proposed is discussed in its relation to the phys. properties of the films and in the light of modern theories of elasticity.

IT Films  
(from rubber, phys. properties and structure of)

IT Cohesion  
(of rubber mols.)

IT Molecules  
(orientation and structure of, of rubber)

IT Rubber  
(structure of vulcanized latex)

ACCESSION NUMBER: 1950:26284 CAPLUS  
DOCUMENT NUMBER: 44:26284  
ORIGINAL REFERENCE NO.: 44:5138i,5139a-e  
TITLE: Structure of vulcanized latex  
AUTHOR(S): Humphreys, N. C. H.; Wake, W. C.  
CORPORATE SOURCE: Research Assoc. Brit. Rubber Manufrs., Croydon, UK  
SOURCE: Transactions, Institution of the Rubber Industry  
(1950), 25, 334-45  
CODEN: TIRIA2; ISSN: 0371-7968  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable

AB The hydrocarbon phase of latex can be regarded as an oil phase, and withdrawal of most of the aqueous phase by evaporation leaves an unstable condition

until the orientation of the interracial material changes. This takes place by a process analogous to phase inversion, whereby the remaining water diffuses through the hydrocarbon. If the protein is replaced by saponin, this reorientation is evident. Thus, when the water is still at least 1% during drying, the film can be redispersed by soaking in water; below 1% redispersion becomes impossible, and at this point the saponin mols. orient themselves to form a water in-oil type of structure. This phase inversion is evident also by a sudden increase in elec. resistivity when the water content decreases to a sufficiently low value. Latex was recreated 4 times in the presence of Na laurate to displace the protein, then vulcanized, strained, and dried at room temperature on glass plates. In another experiment, the soap was extracted by EtOH and drying was

then completed. All films had the same strength as that of corresponding normally vulcanized films. Hence cohesion must be by ordinary chemical forces, i.e., either by primary-valence bonds or by secondary bonds or van der Waals' forces between rubber mols. Since inhibition of a solvent destroys only secondary valence bonds, the 2 possibilities were tested by swelling dried vulcanized films in C<sub>6</sub>H<sub>6</sub>. Swelling maxima were obtained which indicated cross-linking, but the phys. properties indicated the absence of primary-valence bonds between particles and their presence between particles. Hence the cohesion is attributable to van der Waals' forces between the outer mols. of the particles. All these expts. and considerations disprove theoretically and experimentally the view of Hauser (Latex, p. 130) that adsorbed protein and other nonrubber components bond the rubber particles. Extraction with CHCl<sub>3</sub> of

acetone-extracted vulcanized film gave only 0.3% extract of rubber of low mol. weight; hence, the



rubber within the latex particles is vulcanized, i.e., practically completely cross-linked. To a latex mixture prepared from 167 cc. 60% latex., 1 g. ZnO, 1 g. Na diethyldithiocarbamate, 0.25 g. casein, and 0.5 g. NaOH, were added 2, 2.5, 3, 4, 10, and 50 g., resp., of S, and the mixts. were vulcanized and centrifuged. In no case was the combined S over 1.8%, based on the rubber. The stress-strain curves of the dried vulcanized films show very low moduli for low extensions after which they increase rapidly to the breaking point. The structure of films from vulcanized latex which is proposed is discussed in its relation to the phys. properties of the films and in the light of modern theories of elasticity.

L5 ANSWER 24 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1947:12716 CAPLUS

DN 41:12716

OREF 41:2587b-f

ED Entered STN: 22 Apr 2001

TI The settling of paints

AU Rabate, H.

SO Peintures, Pigments, Vernis (1946), 22, 213-18,253-8

CODEN: PPVEAF; ISSN: 0031-4102

DT Journal

LA Unavailable

CC 26 (Paints, Varnishes, and Lacquers)

AB The factors influencing the settling of a paint are: the d. of the solid and liquid phases; the size, distribution, and shape of the pigment or filler particles; the nature of the solid surface (compactness, porosity, chemical reactivity, moisture adsorption, hydrophilic or organophilic character); the viscosity and nature (chemical stability, colloidal character, acidity, polarity, wetting, and dispersing power) of the liquid phase; the weight ratio solid/ liquid; the technique employed in grinding and mixing; the conditions of storage. The sedimentation rule of Stokes has only limited application; the relation of viscosity to the pigment volume of a paint is expressed by the rule of Wolff and Zeidler (C.A. 23, 7878). The settling rate is influenced by the thickness of the adsorbed film-around the pigment particles. Well-wetted pigments cake rapidly and hard, while poorly wetted ones form soft, loose deposits. Electrostatic charges of the suspended solids have little influence on settling; rigidity of a sediment can favorably influence the settling rate (cf. McMillen and Glaser, C.A. 32, 8167.2). Generally, the sediments in colloidal vehicles are harder than those in non-colloidal ones, hardness increasing with vehicle viscosity. Ease of redispersion of a sediment depends upon how thoroughly the solids are wetted by the vehicle. Heat and certain wetting agents or stabilizers influence ease of redispersion and suspension stability. For more rapid evaluation, the paint may be thinned, or centrifuged hot, or subjected to heat and centrifugation alternately. The sediment consistency can be measured by a needle penetrometer or the ease of torsion of an immersed plunger. The settling of paints can be reduced by selecting fillers of low d., small particle size, and particles of suitable shape, by using a vehicle of high viscosity, or thickened with metallic soaps, by selecting media capable of gelation by adding reactive pigments (e.g. ZnO), and by the addition of dispersing or wetting agents. 26 references.

IT Particles

(concentration, shape and size of, of paint fillers, effect on settling of paint)

IT Wetting agents

(effect on redispersion of sediments in settled paints)

IT Grinding

(effect on settling of paints)

IT Consistency

(measurement of, of paint sediment)

IT Sedimentation

(of paints)

IT Electric charge

(on pigments and paint fillers, effect on settling of paints)

IT Dispersion

(re-, of sediments in paints)

IT Paint

(sedimentation in)

IT Pigments

(settling of paints in relation to)

ACCESSION NUMBER: 1947:12716 CAPLUS

DOCUMENT NUMBER: 41:12716

ORIGINAL REFERENCE NO.: 41:2587b-f

TITLE: The settling of paints

AUTHOR(S): Rabate, H.

SOURCE: Peintures, Pigments, Vernis (1946), 22, 213-18, 253-8

CODEN: PPVEAF; ISSN: 0031-4102

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB The factors influencing the settling of a paint are: the d. of the solid and liquid phases; the size, distribution, and shape of the pigment or filler particles; the nature of the solid surface (compactness, porosity, chemical reactivity, moisture adsorption, hydrophilic or organophilic character); the viscosity and nature (chemical stability, colloidal character, acidity, polarity, wetting, and dispersing power) of the liquid phase; the weight ratio solid/ liquid; the technique employed in grinding and mixing; the conditions of storage. The sedimentation rule of Stokes has only limited application; the relation of viscosity to the pigment volume of a paint is expressed by the rule of Wolff and Zeidler (C.A. 23, 7878). The settling rate is influenced by the thickness of the adsorbed film-around the pigment particles. Well-wetted pigments cake rapidly and hard, while poorly wetted ones form soft, loose deposits. Electrostatic charges of the suspended solids have little influence on settling; rigidity of a sediment can favorably influence the settling rate (cf. McMillen and Glaser, C.A. 32, 8167.2). Generally, the sediments in colloidal vehicles are harder than those in non-colloidal ones, hardness increasing with vehicle viscosity. Ease of redispersion of a sediment depends upon how thoroughly the solids are wetted by the vehicle. Heat and certain wetting agents or stabilizers influence ease of redispersion and suspension stability. For more rapid evaluation, the paint may be thinned, or centrifuged hot, or subjected to heat and centrifugation alternately. The sediment consistency can be measured by a needle penetrometer or the ease of torsion of an immersed plunger. The settling of paints can be reduced by selecting fillers of low d., small particle size, and particles of suitable shape, by using a vehicle of high viscosity, or thickened with metallic soaps, by selecting media capable of gelation by adding reactive pigments (e.g. ZnO), and by the addition of dispersing or wetting agents. 26 references.

L5 ANSWER 25 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1927:11404 CAPLUS

DN 21:11404

OREF 21:1375i,1376a-e

ED Entered STN: 16 Dec 2001

TI Effects of some organic acids on the rate of the vulcanization of rubber

AU Mitchell, P. H.

SO Caoutchouc et la Gutta-Percha (1927), 24, 13,440-3

CODEN: CAGUAC; ISSN: 0366-5224

DT Journal

LA Unavailable

CC 30 (Rubber and Allied Substances)

AB A survey of the literature on the effect of acids and resins on the rate of vulcanization of rubber shows a general lack of information regarding the relative effects of individual acids on the rate of vulcanization and on the phys. properties of the vulcanizates. A study was therefore made of the effects of some of the acids in the resin of Hevea rubber and certain other acids with m. ps. not above the temperature of vulcanization. To rubber-S (92.5-7.5) mixts., the rubber of which had previously been extracted

successively with H<sub>2</sub>O and with Me<sub>2</sub>CO, were added the individual acids in amts. equivalent in the H<sub>2</sub>O-soluble acids to the total-acidity of the rubber, and in the H<sub>2</sub>O-insol. acids to the acidity of the resin. Parallel series were in turn prepared with and without just enough ZnO (0.1767 g.) to neutralize the acid. The effects on the rate of vulcanization were judged by comparing the times to reach the maximum tensile strength, which was called the optimum cure. The long time of cure and the small quantities of acids made it difficult in some cases to ascribe the small changes in the time of optimum cure to the acids alone, and 15 min. differences in cure are of little significance. The effects of the acids are most readily shown by the following data, which give the % acid added to the extracted rubber, the time of cure to reach the maximum tensile strength of the mixts. without ZnO and the time for the corresponding mixts. containing ZnO, resp.: unextd. rubber (no acid), -, 225, -; extracted rubber (no acid), , 180, 210; Me<sub>2</sub>CO extract, 3.005, 195, ; stearic acid, 1.18, 180, 210; oleic acid, 1.177, 180, 195; linoleic acid, 1.168, 180, 180; palmitic acid, 1.06, 225, 225; lactic acid, 0.40, 225, 255; malic acid, 0.298, 225, 225; levulinic acid, 0.515, 240, 240; butyric acid, 0.392, 195, 210; caproic acid, 0.478, 225, 240; isocaproic acid, 0.478, 210, 180; caprylic acid, 0.641, 210, 150; benzoic acid, 0.504, 225, ; salicylic acid, 0.569, 300, -. The retardant action of the rubber resins is not in accord with the earlier work of Whitby and of Stevens, but is confirmed by the retardant action observed on adding the individual resin acids to the extracted rubber mixture. Since the extracted rubber mixture to which the

Me<sub>2</sub>CO extract was returned vulcanized more rapidly than the unextd. rubber mixture and was of poorer quality, there must be a H<sub>2</sub>O-soluble acid with a retardant action, or a loss of volatile Me<sub>2</sub>CO-soluble acid, or some phys. cause such as incomplete redispersion of the resin. The increase in the time of cure of the extracted rubber mixture on addition of ZnO is not easily explained, but may be due to the effect of the ZnO on the phys. properties, since the mixture containing ZnO was much the superior. The notable retarding effect of lactic acid on the rate of vulcanization and the fact that it is a good coagulant favors the theory of Whitby and Cambron (C. A. 17, 3808). In further expts. oleic, butyric and caproic acids were added to an extracted rubber-S-ZnO (92.5-7.5-10) mixture, in which case butyric acid had no effect (time of cure 195 min. with and without acid), whereas oleic acid and caproic acid accelerated the rate of vulcanization (time of cure 150 min. each). The results indicate that when there is merely enough ZnO to neutralize the acid, the soaps have no noticeable accelerating action, and that with excess ZnO the chief function of the resin is to improve the dispersion of the pigment. Twenty-six references are included.

IT Acids

(effect of organic, on vulcanization of rubber)

IT Rubber

(vulcanization of, effect of organic acids on)

ACCESSION NUMBER: 1927:11404 CAPLUS

DOCUMENT NUMBER: 21:11404

ORIGINAL REFERENCE NO.: 21:1375i,1376a-e

TITLE: Effects of some organic acids on the rate of the vulcanization of rubber

AUTHOR(S): Mitchell, P. H.

SOURCE: Caoutchouc et la Gutta-Percha (1927), 24, 13,440-3

CODEN: CAGUAC; ISSN: 0366-5224

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB A survey of the literature on the effect of acids and resins on the rate of vulcanization of rubber shows a general lack of information regarding the relative effects of individual acids on the rate of vulcanization and on the phys. properties of the vulcanizates. A study was therefore made of the effects of some of the acids in the resin of Hevea rubber and certain other acids with m. ps. not above the temperature of vulcanization. To

rubber-S (92.5-7.5) mixts., the rubber of which had previously been extracted successively with H<sub>2</sub>O and with Me<sub>2</sub>CO, were added the individual acids in amts. equivalent in the H<sub>2</sub>O-soluble acids to the total-acidity of the rubber, and in the H<sub>2</sub>O-insol. acids to the acidity of the resin. Parallel series were in turn prepared with and without just enough ZnO (0.1767 g.) to neutralize the acid. The effects on the rate of vulcanization were judged by comparing the times to reach the maximum tensile strength, which was called the optimum cure. The long time of cure and the small quantities of acids made it difficult in some cases to ascribe the small changes in the time of optimum cure to the acids alone, and 15 min. differences in cure are of little significance. The effects of the acids are most readily shown by the following data, which give the % acid added to the extracted rubber, the time of cure to reach the maximum tensile strength of the mixts. without ZnO and the time for the corresponding mixts. containing ZnO, resp.: unextd. rubber (no acid), -, 225, -; extracted rubber (no acid), , 180, 210; Me<sub>2</sub>CO extract, 3.005, 195, ; stearic acid, 1.18, 180, 210; oleic acid, 1.177, 180, 195; linoleic acid, 1.168, 180, 180; palmitic acid, 1.06, 225, 225; lactic acid, 0.40, 225, 255; malic acid, 0.298, 225, 225; levulinic acid, 0.515, 240, 240; butyric acid, 0.392, 195, 210; caproic acid, 0.478, 225, 240; isocaproic acid, 0.478, 210, 180; caprylic acid, 0.641, 210, 150; benzoic acid, 0.504, 225, ; salicylic acid, 0.569, 300, -. The retardant action of the rubber resins is not in accord with the earlier work of Whitby and of Stevens, but is confirmed by the retardant action observed on adding the individual resin acids to the extracted rubber mixture. Since the extracted rubber mixture to which the

Me<sub>2</sub>CO extract was returned vulcanized more rapidly than the unextd. rubber mixture and was of poorer quality, there must be a H<sub>2</sub>O-soluble acid with a retardant action, or a loss of volatile Me<sub>2</sub>CO-soluble acid, or some phys. cause such as incomplete redispersion of the resin. The increase in the time of cure of the extracted rubber mixture on addition of ZnO is not easily explained, but may be due to the effect of the ZnO on the phys. properties, since the mixture containing ZnO was much the superior. The notable retarding effect of lactic acid on the rate of vulcanization and the fact that it is a good coagulant favors the theory of Whitby and Cambron (C. A. 17, 3808). In further expts. oleic, butyric and caproic acids were added to an extracted rubber-S-ZnO (92.5-7.5-10) mixture, in which case butyric acid had no effect (time of cure 195 min. with and without acid), whereas oleic acid and caproic acid accelerated the rate of vulcanization (time of cure 150 min. each). The results indicate that when there is merely enough ZnO to neutralize the acid, the soaps have no noticeable accelerating action, and that with excess ZnO the chief function of the resin is to improve the dispersion of the pigment. Twenty-six references are included.

L5 ANSWER 26 OF 26 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1927:11403 CAPLUS  
DN 21:11403  
OREF 21:1375i,1376a-e  
ED Entered STN: 16 Dec 2001  
TI Effects of some organic acids on the rate of the vulcanization of rubber  
AU Mitchell, P. H.  
SO Caoutchouc et la Gutta-Percha (1926), 23, 13,340-2  
CODEN: CAGUAC; ISSN: 0366-5224  
DT Journal  
LA Unavailable  
CC 30 (Rubber and Allied Substances)  
AB A survey of the literature on the effect of acids and resins on the rate of vulcanization of rubber shows a general lack of information regarding the relative effects of individual acids on the rate of vulcanization and on the phys. properties of the vulcanizates. A study was therefore made of the effects of some of the acids in the resin of Hevea rubber and certain other acids with m. ps. not above the temperature of vulcanization. To

rubber-S (92.5-7.5) mixts., the rubber of which had previously been extracted successively with H<sub>2</sub>O and with Me<sub>2</sub>CO, were added the individual acids in amts. equivalent in the H<sub>2</sub>O-soluble acids to the total-acidity of the rubber, and in the H<sub>2</sub>O-insol. acids to the acidity of the resin. Parallel series were in turn prepared with and without just enough ZnO (0.1767 g.) to neutralize the acid. The effects on the rate of vulcanization were judged by comparing the times to reach the maximum tensile strength, which was called the optimum cure. The long time of cure and the small quantities of acids made it difficult in some cases to ascribe the small changes in the time of optimum cure to the acids alone, and 15 min. differences in cure are of little significance. The effects of the acids are most readily shown by the following data, which give the % acid added to the extracted rubber, the time of cure to reach the maximum tensile strength of the mixts. without ZnO and the time for the corresponding mixts. containing ZnO, resp.: unextd. rubber (no acid), -, 225, -; extracted rubber (no acid), , 180, 210; Me<sub>2</sub>CO extract, 3.005, 195, ; stearic acid, 1.18, 180, 210; oleic acid, 1.177, 180, 195; linoleic acid, 1.168, 180, 180; palmitic acid, 1.06, 225, 225; lactic acid, 0.40, 225, 255; malic acid, 0.298, 225, 225; levulinic acid, 0.515, 240, 240; butyric acid, 0.392, 195, 210; caproic acid, 0.478, 225, 240; isocaproic acid, 0.478, 210, 180; caprylic acid, 0.641, 210, 150; benzoic acid, 0.504, 225, ; salicylic acid, 0.569, 300, -. The retardant action of the rubber resins is not in accord with the earlier work of Whitby and of Stevens, but is confirmed by the retardant action observed on adding the individual resin acidsto the extracted rubber mixture Since the extracted rubber mixture to which the

Me<sub>2</sub>CO extract was returned vulcanized more rapidly than the unextd. rubber mixture and was of poorer quality, there must be a H<sub>2</sub>O-soluble acid with a retardant action, or a loss of volatile Me<sub>2</sub>CO-soluble acid, or some phys. cause such as incomplete redispersion of the resin. The increase in the time of cure of the extracted rubber mixture on addition of ZnO is not easily explained, but may be due to the effect of the ZnO on the phys. properties, since the mixture containing ZnO was much the superior. The notable retarding effect of lactic acid on the rate of vulcanization and the fact that it is a good coagulant favors the theory of Whitby and Cambron (C. A. 17, 3808). In further expts. oleic, butyric and caproic acids were added to an extracted rubber-S-ZnO (92.5-7.5-10) mixture, in which case butyric acid had no effect (time of cure 195 min. with and without acid), whereas oleic acid and caproic acid accelerated the rate of vulcanization (time of cure 150 min. each). The results indicate that when there is merely enough ZnO to neutralize the acid, the soaps have no noticeable accelerating action, and that with excess ZnO the chief function of the resin is to improve the dispersion of the pigment. Twenty-six references are included.

IT Acids

(effect of organic, on vulcanization of rubber)

IT Rubber

(vulcanization of, effect of organic acids on)

ACCESSION NUMBER: 1927:11403 CAPLUS

DOCUMENT NUMBER: 21:11403

ORIGINAL REFERENCE NO.: 21:1375i,1376a-e

TITLE: Effects of some organic acids on the rate of the vulcanization of rubber

AUTHOR(S): Mitchell, P. H.

SOURCE: Caoutchouc et la Gutta-Percha (1926), 23, 13,340-2

CODEN: CAGUAC; ISSN: 0366-5224

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB A survey of the literature on the effect of acids and resins on the rate of vulcanization of rubber shows a general lack of information regarding the relative effects of individual acids on the rate of vulcanization and on the phys. properties of the vulcanizates. A study was therefore made of the effects of some of the acids in the resin of Hevea rubber and

certain other acids with m. ps. not above the temperature of vulcanization. To rubber-S (92.5-7.5) mixts., the rubber of which had previously been extracted successively with H<sub>2</sub>O and with Me<sub>2</sub>CO, were added the individual acids in amts. equivalent in the H<sub>2</sub>O-soluble acids to the total-acidity of the rubber,

and

in the H<sub>2</sub>O-insol. acids to the acidity of the resin. Parallel series were in turn prepared with and without just enough ZnO (0.1767 g.) to neutralize the acid. The effects on the rate of vulcanization were judged by comparing the times to reach the maximum tensile strength, which was called the optimum cure. The long time of cure and the small quantities of acids made it difficult in some cases to ascribe the small changes in the time of optimum cure to the acids alone, and 15 min. differences in cure are of little significance. The effects of the acids are most readily shown by the following data, which give the % acid added to the extracted rubber, the time of cure to reach the maximum tensile strength of the mixts. without ZnO and the time for the corresponding mixts.

containing ZnO, resp.: unextd. rubber (no acid), -, 225, -; extracted rubber (no acid), , 180, 210; Me<sub>2</sub>CO extract, 3.005, 195, ; stearic acid, 1.18, 180, 210; oleic acid, 1.177, 180, 195; linoleic acid, 1.168, 180, 180; palmitic acid, 1.06, 225, 225; lactic acid, 0.40, 225, 255; malic acid, 0.298, 225, 225; levulinic acid, 0.515, 240, 240; butyric acid, 0.392, 195, 210; caproic acid, 0.478, 225, 240; isocaproic acid, 0.478, 210, 180; caprylic acid, 0.641, 210, 150; benzoic acid, 0.504, 225, ; salicylic acid, 0.569, 300, -. The retardant action of the rubber resins is not in accord with the earlier work of Whitby and of Stevens, but is confirmed by the retardant action observed on adding the individual resin acids to the extracted rubber mixture. Since the extracted rubber mixture to

which the

Me<sub>2</sub>CO extract was returned vulcanized more rapidly than the unextd. rubber mixture and was of poorer quality, there must be a H<sub>2</sub>O-soluble acid with a retardant action, or a loss of volatile Me<sub>2</sub>CO-soluble acid, or some phys. cause such as incomplete redispersion of the resin. The increase in the time of cure of the extracted rubber mixture on addition of ZnO is not easily explained, but may be due to the effect of the ZnO on the phys. properties, since the mixture containing ZnO was much the superior. The notable retarding effect of lactic acid on the rate of vulcanization and the fact that it is a good coagulant favors the theory of Whitby and Cambron (C. A. 17, 3808). In further expts. oleic, butyric and caproic acids were added to an extracted rubber-S-ZnO (92.5-7.5-10) mixture, in which case butyric acid had no effect (time of cure 195 min. with and without acid), whereas oleic acid and caproic acid accelerated the rate of vulcanization (time of cure 150 min. each). The results indicate that when there is merely enough ZnO to neutralize the acid, the soaps have no noticeable accelerating action, and that with excess ZnO the chief function of the resin is to improve the dispersion of the pigment. Twenty-six references are included.

=> log off

ALL L# QUERIES AND ANSWER SETS ARE DELETED AT LOGOFF

LOGOFF? (Y)/N/HOLD:y

STN INTERNATIONAL LOGOFF AT 15:14:45 ON 20 SEP 2007